166
25791
U. S. C. C.

Vol. I

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1937

No. 72

CROWN CORK & SEAL COMPANY, INC.,
PETITIONER,

vs.

FERDINAND GUTMANN CO., INC.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

PETITION FOR CERTIORARI FILED MAY 20, 1937.

CERTIORARI GRANTED OCTOBER 11, 1937.

BLANK

PAGE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1937

No. 72

CROWN CORK & SEAL COMPANY, INC.,
PETITIONER,

vs.

FERDINAND GUTMANN CO., INC.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

VOL. I

INDEX.

	Original	Print
Record from D. C. U. S., Eastern New York	1	1
Bill of complaint	1	1
Answer and counterclaim	9	6
Reply of plaintiff to defendant's counterclaim	38	25
Plaintiff's bill of particulars as to claims relied on	40	26
Answer of defendant to part of plaintiff's motion for bill of particulars re anticipation	41	27
Order for bill of particulars, etc	42	27
Answer of defendant to order for bill of particulars	48	31
Plaintiff's bill of particulars as to dates of conception	60	39
Plaintiff's motion for further particulars	61	39
Defendant's voluntary answers to further particulars	65	42
Notice re state of the art references	71	45
Stipulation re defendant's Crown shipments	72	46
Statement of the evidence	74	47
Appearances of counsel	74	47
Offers in evidence	74	47

JUDD & DETWEILER (INC.), PRINTERS, WASHINGTON, D. C., OCTOBER 28, 1937.

	Original	Print
Record from D. C. U. S., Eastern New York—Continued.		
Statement of the evidence—Continued.		
Testimony of John W. Gilbert	77	49
Andrew Weisenburg	79	51
Frederick E. Fusting	139	96
Arthur F. Rohrman	173	121
John Alberti	174	123
Alexander Bogdamffey	186	132
Berthold Nagy	192	137
Irving P. Macauley	211	152
John A. Johnson	221	159
Richard C. Harrison	239	174
John A. Johnson (recalled)	241	175
Ralph L. Evans	244	176
Alfred C. de Lanoy	256	187
George L. Peters	261	191
Alvin M. Ketterer	268	196
Benno Cohn	278	204
Wm. M. Fries	356	266
Aubrey P. Scudder	363	272
Charles H. Rasmussen	369	277
Jay B. Eisen	387	292
Jesse Gutmann	390	302
Ferdinand Gutmann	405	307
Stipulation as to certain evidence	415	314
Testimony of Samuel Cohn	417	316
John J. Darby	424	322
John W. Gilbert (recalled)	449	340
Charles E. McManus	452	343
Melchor Marsa	465	352
Arthur Volpe	470	356
Bertalin Szavo	475	361
George Goebel	480	366
Irving M. Oberfelder	516	393
George Goebel (recalled)	524	400
Wm. F. Wagner	558	425
Horace M. Cushman	562	429
John J. Darby (recalled)	567	433
Albin H. Warth	570	442
George Goebel (recalled)	631	481
Henry D. Reed	632	482
Miriam Stover	639	487
Andrew Weisenburg (recalled)	645	492
Scott I. Wilbur	679	517
George Goebel (recalled)	682	520
Frederick E. Fusting (recalled)	683	521
Benno Cohn (recalled)	690	526
Stipulation and order approving statement of evidence	694	529
Plaintiff's Exhibits:		
1—McManus patent No. 1,339,066, of which claims 3 and 8 are involved	695	530
Warth patent No. 1,899,782, of which claims 7 and 9 are in issue	700	535

	Original	Print
Record from D. C. U. S., Eastern New York—Continued.		
Statement of the evidence—Continued.		
Plaintiff's Exhibits—Continued:		
Warth patent No. 1,899,783, of which claim 4 is in issue	705	540
Warth reissue patent No. 19,117, of which claims 1 and 3 are in issue	711	546
Warth patent No. 1,967,195, of which all three claims are in issue	716	551
Warth patent No. 1,956,481, of which claims 6 and 16 are in issue	722	557
2—Letters dated April 2 and April 26 and July 18, 1934	729	565
3—Stipulation as to certain facts	732	566
13—Some of the interrogatories directed to defendant and answers thereto	743	573
14—Johnson patent No. 1,852,578	746	575
15—Cohn patent No. 1,921,808	767	596
16—Chart of typical machine and procedure for making ordinary crowns	770	599
17—Chart showing how center spot crowns are applied	771	600
21—Chart illustrating Warth method in reissue patent in suit	772	601
22—Another chart showing Warth method	773	602
23—Chart showing method in Johnson and Cohn patents according to stipulation	774	603
29—List showing production by plaintiff of paper center spot crowns from 1928 to 1934	775	605
30—List showing action of one or more typical purchasers from plaintiff from 1925 on	776	605
31—List showing production by plaintiff of natural cork crowns from 1923 on	777	606
32—List showing production by plaintiff of natural cork crowns from 1917 to date	778	606
33—List showing manufacture by plaintiff of all types of spot crowns, metal foil and paper spot	779	607
34—Record of typical users of metal foil spot crowns	779	607
35—Photograph showing Cuban machine of March 1, 1928	780	608
36—Letter dated October 5, 1928, from Johnson to Armstrong Cork Co.	781	609
37—Letters dated April 20 and April 24, 1928, between Johnson and Armstrong Cork Co.	782	609
38—Sketch by witness Cohn of machine used for producing Inecto caps	784	610
39—Bill by Gutmann to Inecto, dated May 13, 1925	785	611

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Plaintiff's Exhibits—Continued: Original Print

40—Memorandum accompanying Plaintiff's Exhibit 39 ..... 785 611
41—Photograph of machines shown by McManus to Johnson..... 787 612
42—Photograph of machines shown by McManus to Johnson..... 788 612
43—Drawing made by witness Goebel showing sequence of steps in operation of machine developed under Goebel's supervision.... 789 612
44—Memorandum signed by W. F. Walker produced by witness Goebel..... 791 613
45—Photographs accompanying Exhibit 44..... 793 614
50—Appropriation No. 91,036 to cover money available for three aluminum spots to be applied to crown assembling machines, as per blue prints..... 795 614
51—Paper dated April 15, 1925, referring to scrapping of three slide machines..... 797 615
52—Photograph produced by witness Goebel showing machine used for combining two strips in one roll..... 799 616
53—Appropriation No. 91,092, covering combining machine 801 616
54—Appropriation No. 91,133, to cover building of additional gutta percha combined machine 803 616
55—Letter from Warth to Goebel..... 805 617
56—Paper signed by Goebel relating to invention of Warth on use of varnished paper for spot crowns 806 617
57—Letters dated June 29 and July 24, 1933, relating to equipment for coating..... 809 620
58—Letter from Warth to Goebel, dated July 11th 819 627
59—Contract tendered to Crown Cork & Seal Co., by Waldron Co..... 820 628
60—Telegram dated August 3, 1932, wth reference to Exhibit 39..... 831 635
64—Keller patent No. 1,081,505..... 832 636
67—Letters addressed to Mr. Warth, headed M. Stover, with reference to experiments..... 845 649
68—Letter signed A. H. Warth, to J. W. Cleaveland of duPont Co., at Parlin, dated May 11, 1932 ..... 849 651
69—Letter dated May 9, 1933, from Warth to John Waldron Co..... 850 652
70—Letter dated May 25, 1933, from Warth to John Waldron Co. 851 653
71—Letter dated June 23, 1933, from Warth to Waldron 852 653

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Plaintiff's Exhibits—Continued: Original Print
72—Memorandum dated July 28, 1933, signed A. H. Warth 853 654
73—Letter dated August 30, 1920, from A. A. Eisenberg to A. H. Warth 854 655
74—Invoice dated April 13, 1927, from Crown Cork & Seal to Burroughs Bros. Co. 856 656
75—Letter dated June 30, 1927, from Warth to Burroughs Bros., and similar letter dated July 1, 1927 ..... 857 657
76—Two invoices dated August 17, and September 9, 1927, from Crown Cork & Seal Co. to Macomber Orchard Co. 859 658
80—Two photographs showing machine as altered within last week by witness Weisenburg 861 658
84—Letter to Gutmann by Crown Cork & Seal Co. offering license, dated March 21, 1933 863 659
85—Certified copy of certain papers from Interference No. 66,201 ..... 864 660
86—Certified copy of certain papers from Interference No. 60,878 ..... 871 664
87—Certified copy of file wrapper and contents of Johnson patent 1,852,578 ..... 888 676
Defendant's Exhibits:
A—File wrapper and contents of Warth patent 1,899,783 ..... 946 734
B—File wrapper and contents of application of John Alberti for patent 1,199,026 ..... 1028 818
E—Affidavit made by Alberti for Crown Cork & Seal Company 1068 859
G—Bills dated November 1, and November 20, 1924, to Ferdinand Gutmann & Company by Nagy for dies 1071 860
H—Confirmation order of Beechnut Foil Co., dated December 31, 1924, for .0045 pure tin-foil, produced by witness Macauley .. 1072 860
I—Letter from Beechnut Foil Co., dated January 17, 1925, addressed to Ferdinand Gutmann & Co. 1076 861
J—Confirmation order dated January 17, 1925, from Beechnut Foil Co. to Ferdinand Gutmann & Co., and invoice of January 22, 1925, covering same 1077 862
K—Confirmation orders and invoices from Beechnut Foil Co. to Ferdinand Gutmann & Co. 1081 862
L—Letters dated January 24 and January 30, 1929, from Reynolds Metal Co. 1083 863
M—Letter of March 12 from Reynolds Metal Co. to Ferdinand Gutmann Co. 1086 865

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.

Defendant's Exhibits—Continued:	Original	Print
N—Invoices from Reynolds Metal Co. to Ferdinand Gutmann Co.	1087	866
O—Letters of February 8 and February 22, 1929, from Reynolds Metal Co. to Ferdinand Gutmann Co.	1098	877
P—Bill of August 31, 1928, from Johnson to Ferdinand Gutmann & Co.	1101	880
Q—Four bills from September 17, 1928, to April 30, 1929, for assembling machines from Johnson to Gutmann.	1102	881
R—Four bills from May 16, 1933, to June 19, 1933, from Johnson to Gutmann for machines	1104	883
S—Bill dated July 31, 1928, from Johnson to Gutmann for one tin-foil machine with hopper	1108	887
T—Orders from Crown Cork & Seal Co. to Johnson, and copies of invoices from Johnson to Crown Cork & Seal Co. for five machines, from March, 1929 to July 3, 1929	1109	888
U—Petition to institute public use proceedings filed by Johnson in interference proceedings under patent No. 1,852,578	1121	901
V—List of machines sold by Johnson like those in patent 1,852,578	1149	919
W—Page 19 of catalog of A. Johnson Machine Works	1154	922
X—Bill of Johnson to Gutmann, dated March 18, 1931	1155	922
Y—Agreement between Johnson and Crown Cork & Seal Co.	1157	923
Z—Letter dated December 12, 1933, from Crown Cork & Seal Co. to Johnson	1161	925
AA—Assignment from Johnson to Crown Cork & Seal Co.	1162	925
CC—Invoices dated December 4 and December 11, 1924, from Gutmann to Inecto Co.	1164	926
DD—Invoice from Gutmann to Inecto, dated January 27, 1925	1166	926
EE—Invoice dated February 5, 1925, from Gutmann to Inecto	1167	926
FF—Invoice dated March 4, 1925, from Gutmann to Inecto	1168	926
GG—Invoice dated Feb. 19, 1925, from Gutmann to Inecto	1169	926
HH—Letter from Inecto to Gutmann, dated February 4, 1925	1170	927

	Original	Print
Record from D. C. U. S., Eastern New York—Continued.		
Statement of the evidence—Continued.		
Defendant's Exhibits—Continued:		
II—Letter from Inecto to Gutmann, dated March 9, 1925	1171	927
JJ—Invoice from Gutmann to Inecto, dated March 26, 1925	1172	929
KK—Invoice from Gutmann to Inecto, dated March 26, 1925	1173	930
LL—Six invoices from Gutmann to Inecto, from March 27 to May 18, 1925	1174	931
MM—Letter from Gutmann to Inecto, dated Feb. 19, 1925	1180	937
NN—Letter from Bishop Gutta Percha Co. to Gutmann, dated January 6, 1925	1182	938
OO—Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 7, 1925	1183	939
PP—Invoice from Bishop Gutta Percha Co. to Gutmann, dated December 31, 1924	1183	939
QQ—Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 16, 1925	1184	940
RR—Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 30, 1925	1184	940
SS—Invoice from Bishop Gutta Percha Co. to Gutmann, dated February 11, 1925	1185	941
TT—Batch of invoices from Bishop Gutta Percha Co. to Gutmann, from March 23, 1928, to September 27, 1928	1186	942
UU—Invoice from Peters Bros. to Gutmann, dated April 10, 1929	1192	948
VV—Three invoices from Peters Bros. Rubber Co. to Gutmann, dated August 21, September 16 and November 1, 1929	1193	949
WW—Three invoices from Peters Bros. Rubber Co. to Gutmann, dated April 31, May 10 and May 15, 1930	1196	952
XX—Invoice from Peters Bros. Rubber Co. to Gutmann, dated May 25, 1929	1199	955
YY—Three invoices from Peters to Gutmann, dated January 15, April 28 and December 5, 1930	1200	956
ZZ—Four invoices from Peters to Gutmann, dated September 24, 1931 to November 1, 1932	1203	959
AAA—Two invoices from Peters to Gutmann, dated April 3 and May 15, 1929	1207	963
BBB—License agreement between Peters and Crown Cork & Seal Co.	1209	965
CCC—Certified copy of file wrapper and contents of patent No. 1,956,481	1213	968
DDD—Warth patent 1,956,481 and references set up in the answer as defense of that that patent:		
Warth patent in Suit No. 1,956,481	722	556

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued:

REFERENCES

	Original	Print
Alberti, Patent No. 1,199,026	1267	1022
McManus, Patent No. 1,339,066	695	530
Hitt, Patent No. 1,710,453	1271	1026
Byers, Patent No. 1,325,075	1277	1033
Wilson, Patent No. 1,389,084	1283	1039
Flaherty, Patent Re-issue No. 16,803	1285	1041
Reid, Patent No. 1,554,033	1290	1046
Smith et al., Patent No. 983,319	1292	1048

DEFENDANT'S EXHIBIT

Warth, Patent No. 1,867,637	1295	1051
Warth, Patent No. 1,908,498	1299	1055
Warth, Patent No. 1,788,260	1305	1061
EEE—Certified copy of file wrapper and contents of patent 1,899,782	1310	1066
FFF—Warth Patent No. 1,899,782 and references:		
Warth Patent in suit No. 1,899,782	700	535

REFERENCES.

McManus, Patent No. 1,213,926	1362	1118
McManus, Patent No. 1,638,541	1366	1122
Lange, Patent No. 1,657,802	1369	1125
Lange, Patent No. 1,758,610	1373	1129
Smith et al., Patent No. 983,319	1292	1048
Koch, Patent No. 1,238,156	1376	1132
Farrell, Patent No. 1,358,834	1379	1135

DEFENDANT'S EXHIBIT

Johnson, Patent No. 408,177	1381	1137
Keeran, Patent No. 957,064	1383	1139
GGG—Certified copy of file wrapper and contents of reissue patent No. 19,117	1387	1143
HHH—Warth Patent Reissue No. 19,117 and references set up in answer:		
Warth Patent in Suit Reissue No. 19,117	711	546

REFERENCES

McManus, Patent No. 1,339,066	695	530
McManus, Patent No. 1,213,926	1362	1118
McManus, Patent No. 1,402,780	1421	1177
Alberti, Patent No. 1,199,026	1267	1022
Bartlett, Patent No. 993,288	1437	1193

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued:

DEFENDANT'S EXHIBIT

	Original	Print
Marsa, Patent No. 1,603,786	1446	1202
Alberti, Patent No. 1,401,300	1449	1205
Wheeler, Patent No. 887,883	1460	1216
Painter, Patent No. 887,838	1471	1227
Painter, Patent No. 792,284	1478	1234
III—Certified copy of file wrapper and contents of patent 1,788,260	1484	1240
JJJ—Certified copy of file wrapper and contents of original application of Warth, Serial 360,895, referred to in patent 1,899,783	1540	1296
KKK—Warth patent No. 1,899,783 in suit and references set up in the answer:		
Warth Patent in Suit No. 1,899,783	705	540

REFERENCES

McManus, Patent No. 1,339,066	695	530
Smith et al., Patent No. 983,319	1292	1048
Koch, Patent No. 1,238,156	1376	1132
Stahl, Patent No. 1,215,737	1656	1412
Lange, Patent No. 1,779,884	1661	1417
Hanauer, Patent No. 671,191	1666	1422

DEFENDANT'S EXHIBIT

Keeran, Patent No. 957,064	1383	1139
Johnson, Patent No. 408,177	1381	1137
LLL—Certified copy of file wrapper and contents in patent No. 1,967,195, to Warth	1668	1424
MMM—Folder containing copy of patent 1,967,195 and references set forth in the answer:		
Warth Patent in Suit No. 1,967,195	716	551

REFERENCES

Alberti, Patent No. 1,199,026	1267	1022
McManus, Patent No. 1,339,066	695	530
McManus, Patent No. 1,213,926	1362	1118
McManus, Patent No. 1,402,760	1421	1177
Bartlett, Patent No. 993,288	1437	1193
Johnson Patent No. 1,852,578	746	575
Bogdanffy, Patent No. 1,169,608	1716	1472
Bogdanffy, Patent No. 1,053,565	1730	1486
Bogdanffy, Patent No. 1,053,898	1738	1494
Painter, Patent No. 468,226	1746	1502

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued:

DEFENDANT'S EXHIBIT

	Original	Print
Alberti, Patent No. 1,401,300	1449	1205
Clark, Patent No. 1,134,031	1752	1508
Painter, Patent No. 792,284	1478	1234
Painter, Patent No. 887,838	1471	1227
Wheeler, Patent No. 887,883	1460	1216
NNN—Invoice from Gutmann to Goetz Brewing Co., dated August 14, 1928	1763	1519
OOO—Credit memorandum dated October 2, 1928, from Gutmann to Goetz	1764	1520
PPP—Invoice dated August 23rd, from Gutmann to Goetz	1765	1521
QQQ—Invoice from Gutmann to Goetz, dated August 31, 1928	1766	1522
RRR—Invoice dated September 21, 1928, from Gutmann to Goetz	1767	1523
SSS—Invoice dated October 26, 1928, from Gutmann to Goetz	1768	1524
TTT—Bundle of invoices from Gutmann to Goetz	1769	1525
VVV—Two letters dated August 22 and August 23, 1928	1813	1569
WWW—Letter from duPont to Gutmann, dated May 12, 1932	1817	1572
XXX—Tabulation of gross shipments of crowns made by Gutmann Co. from 1928 to 1934	1819	1573
ZZZ—Letter from Crown Cork & Seal Co. to Gutmann, dated December 10, 1928, with attached acknowledgment	1820	1573
CCCC—Paper showing test of pressure of plungers with springs, by Cohn	1821	1574
DDDD—Two papers covering 100 gross each of crowns with paper spot centers produced by witness Fries	1822	1574
EEEE—Nine orders from Crown Cap Mfg. Co., dated March 28, 1930, to October 2, 1930, including two without dates, to Ferdinand Gutmann Co. for placing spots on crowns	1823	1574
FFFF—Letter from Crown Cap Mfg. Co. to Gutmann, dated April 23, 1929	1829	1575
GGGG—Invoices on stationery of Crown Cork & Seal Co. from June 1 to November 30, 1917	1830	1576
HHHH—Invoice for inserting spots in 600 gross of caps	1834	1580
IIII—Invoices from Crown Cork & Seal Co. to Kalak Water Co., July 23, 1920, and August 31, 1920	1835	1581

	Original	Print
Record from D. C. U. S., Eastern New York—Continued.		
Statement of the evidence—Continued.		
Defendant's Exhibits—Continued:		
JJJJ—Three invoices from Gutmann, dated December 16, 1918, July 16 and February 1, 1919, to Kalak Co.	1836	1582
LLLL—Report by Schwarz Laboratories of test on caps secured with center spots using 4620 adhesive for Gutmann	1839	1585
MMMM—Bill from duPont Co. to Gutmann, dated April 4, 1933	1842	1586
OOOO—Original interrogatories to plaintiff and plaintiff's answers to same	1843	1587
PPPP—Letter from plaintiff to defendant, dated October 13, and letter from defendant to plaintiff, dated October 10, and defendant's reply of October 14	1868	1605
RRRR—Certified copy of preliminary statement of Albin H. Warth in Interference No. 60,931	1871	1606
SSSS—Affidavit of John J. Darby, dated May 20, 1932	1872	1607
UUUU—License agreement between Crown Cork & Seal Co. and Lange	1877	1610
VVVV—Portion of order of United States for Southern District of New York, recorded on January 31, 1934, in Crown Cork & Seal Co. vs. Pennie, Davis, Marvin & Edmonds	1883	1613
XXXX—Advertisement in "Spot Crowns" of plaintiff, dated July, 1933	1886	1614
YYYY—Record of Interference 66,201	1887	1615
ZZZZ—McManus patent No. 1,339,066 and references set up in answer:		
McManus Patent in Suit No. 1,339,066.	695	530
REFERENCES		
American Cork & Seal Co., French Patent No. 415,794	739	571
Montaner & Co., French Patent No. 463,971	734	568
Demuth of 1913, British Patent No. 16,075	1907	1628
MacCormack, British Patent No. 26,297	1910	1631
Alberti, Patent No. 1,199,026	1267	1022
Jones, Patent No. 903,865	1913	1634
Jones, Patent No. 1,110,138	1917	1638
Bartlett, Patent No. 993,288	1437	1193
Nielsen, Patent No. 1,195,392	1921	1642
Knox, Patent No. 1,129,578	1938	1659

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued:

DEFENDANT'S EXHIBIT

	Original	Print
Johnson, Patent No. 408,177	1381	1137
Keeran, Patent No. 957,064	1383	1139
Recht, Patent No. 796,356	1942	1663
AAAAA—Certified copy of file wrapper and contents of application of Albin H. Warth, Serial No. 494,201	1946	1668
BBBBB—Certified copy of abandoned application of Albin H. Warth, filed August 21, 1926, Serial No. 130,631	2009	1731
DDDDD—Affidavit of John J. Darby of April 2, 1934, in Interference No. 66,201	2041	1763
EEEEE—Preliminary statement of Johnson in Interference No. 66,201	2043	1764
HHHHH—Page 5 of "Beverage Journal", dated June, 1930	2045	1766
Opinion, Campbell, D. J.	2047	1767
Stipulation as to findings of fact and conclusions of law	2106	1807
Interlocutory decree	2107	1807
Defendant's petition for appeal	2111	1810
Defendant's order allowing appeal	2112	1811
Defendant's assignment of errors	2113	1811
Defendant's citation (omitted in printing)	2120	
Plaintiff's petition for appeal	2121	1816
Plaintiff's order allowing appeal	2122	1816
Plaintiff's assignment of errors	2122	1816
Plaintiff's citation (omitted in printing)	2124	
Stipulation and order waiving Equity Rule 75	2125	1818
Stipulation and order waiving bonds	2127	1818
Stipulation as to contents of record	2128	1819
Stipulation as to correctness of record	2144	1829
Clerk's certificate (omitted in printing)	2145	
Proceedings in U. S. C. C. A., Second Circuit	2146	1830
Opinion, Swan, J.	2146	1830
Dissenting opinion, Manton, J.	2151	1839
Judgment	2152	1839
Petition for rehearing (omitted in printing)	2154	
Orders denying petition for rehearing	2171	1840
Clerk's certificate	2174	1841
Order extending time within which to apply for writ of certiorari	2175	1843
Order allowing certiorari	2176	1843

[fol. 1]

IN UNITED STATES DISTRICT COURT, EASTERN DISTRICT OF NEW YORK

In Equity No. 7371

U. S. Letters Patents Nos. 1,339,066; 1,899,782; 1,899,783; Reissue 19,117; 1,956,481, and 1,967,195

CROWN CORK & SEAL COMPANY, INC., Plaintiff,

vs.

FERDINAND GUTMANN & Co., Defendant

BILL OF COMPLAINT

Plaintiff for this Bill of Complaint alleges:

I

That Plaintiff, Crown Cork & Seal Company, Inc., is a corporation organized and existing under the laws of the State of New York and is a citizen of the State of New York; that Defendant, Ferdinand Gutmann & Co., is a corporation organized and existing under the laws of the State of New York and is a citizen of the State of New York, and has a regular and established place of business in the City of Brooklyn, County of Kings and State of New York, within the Eastern Judicial District of New York, at which place and in which district, among others, the acts hereinafter complained of as infringements have been done and are being done by the said Defendant.

II

That this is a suit in Equity arising under the patent laws of the United States for infringement of the following United States Letters Patent:

[fol. 2] Patent No. 1,339,066, granted to Charles E. McManus, May 4, 1920, on an application filed November 17, 1915, for "Bottle-Closure."

Patent No. 1,899,782, granted to Plaintiff, Crown Cork & Seal Company, Inc., February 28, 1933, as assignee of Albin H. Warth, on an application filed December 17, 1929, for

"Material for Facing Bottle Caps and Method of Making Same."

Patent No. 1,899,783, granted to Plaintiff, Crown Cork & Seal Co., Inc., February 28, 1933, as assignee of Albin H. Warth on an application filed May 5, 1929, for "Bottle Cap & Method of Manufacturing Same."

Reissue Patent No. 19,117, granted to Plaintiff, Crown Cork & Seal Company, Inc., March 20, 1934, as assignee of Albin H. Warth, for "Process of Producing Closures," being a reissue of Patent No. 1,788,260, granted to Plaintiff, Crown Cork & Seal Co., Inc., January 6, 1931, as assignee of Albin H. Warth, on an application filed January 7, 1927, for "Process of Producing Closures."

Patent No. 1,956,481, granted to Plaintiff, Crown Cork & Seal Co., Inc., April 24, 1934, as assignee of Albin H. Warth, on an application filed June 16, 1933, for "Spot Crown and Liner Material Therefor."

Patent No. 1,967,195, granted to Plaintiff, Crown Cork & Seal Company, Inc., July 17, 1934, as assignee of Albin H. Warth, on an application filed November 7, 1930.

[fol. 3] III

That with respect to each of the patents in the foregoing list, Plaintiff upon information and belief alleges that prior to the respective application dates, the inventors named therein were the first, original and sole inventors of the inventions disclosed therein, which inventions were not known or used by others in this country before his invention thereof and were not patented or described in any printed publication in this or any foreign country before their invention thereof, or more than two years prior to the respective application dates and not in public use or on sale in this country for more than two years prior to said respective application dates and which had not been abandoned, nor patented, nor caused to be patented by themselves or their legal representatives or assigns in any foreign country upon an application or applications filed more than twelve months prior to said respective application dates; that on said respective application dates they duly filed in the United States Patent Office applications for Letters patent for said inventions; and that on the several dates of issue all of the requirements of the Statutes of the United States then in force having been complied with, the respective patents

Nos. 1,899,782; 1,899,783; 1,956,481; and 1,967,195, were issued to Plaintiff, as assignee of Albin H. Warth, for a term of seventeen years from the respective dates of said patents; that reissue Letters Patent No. 19,117 were issued to Plaintiff as assignee of said Albin H. Warth for the unexpired part of the term of said original Letters Patent No. 1,788,260; and that said Letters Patent No. 1,339,066 [fol. 4] were issued to Charles E. McManus for a term of seventeen years from the date thereof as by said several Letters Patent or duly authenticated copies thereof, ready in Court to be produced, will more fully and at large appear.

IV

That subsequent to the issue of said patent No. 1,339,066, the entire right, title and interest in and to said Letters Patent and invention, together with all rights of recovery for past infringement thereof arising under said Letters Patent was sold, assigned and transferred, unto Plaintiff, Crown Cork & Seal Company, Inc., by an instrument in writing, which assignment has been duly recorded in the Patent Office of the United States; and that prior to the issuance of said patents Nos. 1,899,782; 1,899,783; 1,956,481; Reissue 19,117, and 1,967,195, the said Albin H. Warth, by instrument in writing, sold, assigned and transferred unto Plaintiff, Crown Cork & Seal Company, Inc., his entire right, title and interest in and to said Letters Patent and Reissue Letters Patent and invention, which assignments have been duly recorded in the Patent Office of the United States.

V

That on or about January 23, 1934, the said Albin H. Warth, with the consent of Plaintiff, Crown Cork & Seal Company, Inc., made application in writing to the Commissioner of Patents for the reissue of Letters Patent No. [fol. 5] 1,788,260, dated January 6, 1931, alleging that said Letters Patent No. 1,788,260 were inoperative by reason of a defective and insufficient specification and that the error arose through inadvertence, accident or mistake, and without any fraudulent or deceptive intention, and that Plaintiff, Crown Cork & Seal Company, Inc., surrendered said Letters Patent No. 1,788,260, paid the fees required by law, and duly complied with all the requirements in

such case made and provided, whereupon the Commissioner of Patents caused new Reissue Letters Patent for the same invention as that disclosed in said original Letters Patent No. 1,788,260, in accordance with the corrected specification, to issue to Plaintiff, Crown Cork & Seal Company, Inc., on the twentieth day of March, 1934, and numbered 19,117, whereby there was granted and secured to Plaintiff, Crown Cork & Seal Company, Inc., its successors or assigns for the unexpired part of the term of said original Letters Patent No. 1,788,260, the full and exclusive right to use the invention and improvements as set forth in said reissue Letters Patent No. 19,117. Plaintiff, Crown Cork & Seal Company, Inc., has been, ever since the grant of said reissue Letters Patent, and still is, the sole and exclusive owner of all right, title and interest in and to said reissue Letters Patent No. 19,117.

VI

That said inventions, patented as aforesaid are of great value and utility to Plaintiff, Crown Cork & Seal Company, Inc., and to the public generally; that large numbers of products made in accordance with and embodying the in-
[fol. 6] ventions of said Letters Patent and said Reissue Letters Patent have been made and sold by Plaintiff, Crown Cork & Seal Company, Inc.; that the validity of said patents has been generally recognized by the trade and by Plaintiff's competitors, practically all of whom have accepted licenses and paid large sums in royalties for the use of said inventions; that a large and profitable business in the exploitations of said inventions has been built up by Plaintiff, Crown Cork & Seal Company, Inc., and its licensees, so that the said inventions have been and are of great value and profit to Plaintiff, and but for the unlawful acts of Defendants herein complained of, would have been of greater value and profit to Plaintiff.

VII

That, upon information and belief, Defendant, well knowing the premises, and with the intent to injure Plaintiff, has, since the grant of said Letters Patent Nos. 1,339,066; 1,899,782; 1,899,783; Reissue 19,117; 1,956,481 and 1,967,195, and prior to and within six years from the commencement of this suit, within the Eastern Judicial District of

New York, and elsewhere throughout the United States, infringed upon said Letters Patent, and each of them, by practicing the processes and making, using and selling, and inducing others to make, sell and use products embodying the inventions of said several Letters Patent, and threatens to continue so to infringe; wherefore, Plaintiff has been damaged and Defendant has profited.

[fol. 7]

VIII

That Defendant has been notified of its infringement of said Letters Patent, and each of them, but that as Plaintiff is informed and believes, Defendant nevertheless has since such notice continued its infringement.

IX

Wherefore, Plaintiff prays:

1. For a permanent injunction, and a preliminary injunction pending this suit, prohibiting Defendant, Ferdinand Gutmann & Co., Inc., its officers, agents, employees, workmen and confederates from directly or indirectly practicing the processes or making or causing to be made, using or causing to be used, selling or causing to be sold, products embodying the invention of any or all of said Letters Patent Nos. 1,339,066; 1,899,782; 1,899,783; Reissue 19,117; 1,956,481; and 1,967,195, and from infringing upon or violating the rights of Plaintiff in said Letters Patent in any way whatsoever.

2. For costs and an accounting of profits and damages.

3. For such other and further relief as the circumstances of the case may require.

Crown Cork & Seal Company, Inc., by F. E. Fusting, Vice president. Gifford, Scull & Burgess, 141 [fol. 8] Broadway, New York, N. Y., Solicitors for Plaintiff. Cushman, Darby & Cushman, American Security Building, Washington, D. C., Attorneys for Plaintiff. George F. Scull, John J. Darby, of Counsel.

Duly sworn to by F. E. Fusting. Jurat omitted in printing.

[fol. 9] IN UNITED STATES DISTRICT COURT

[Title omitted]

ANSWER AND COUNTERCLAIM

The defendant, Ferdinand Gutmann & Co., for answer and counterclaim to the Bill of Complaint herein, alleges as follows:

First. That for the purposes of this suit, defendant admits the allegations of paragraph I respecting the corporate [fol. 10] character, existence and residence of the defendant, but denies that the defendant has committed or is committing, in the Eastern District of New York, or elsewhere, any of the acts of infringement complained of in the said Bill of Complaint. This defendant, not being informed, except by the Bill of Complaint, as to the citizenship and residence of the plaintiff, leaves the plaintiff to make such proof thereof as it may.

Second. The above named defendant is not informed, except by the Bill of Complaint, as to the matters set forth in paragraph II thereof and again denying the infringement alleged, leaves plaintiff to its proof.

Third. That defendant has no knowledge of the allegations set forth in paragraph IV of the Bill of Complaint alleging title in plaintiff to said patents and leaves plaintiff to its proof thereof.

Fourth. As to each of the six patents set forth in the Bill of Complaint, defendant sets up its defence to each patent separately as follows:

McManus Patent No. 1,339,066, Dated May 4, 1920, on an Application Filed November 17, 1915

For a first and separate defense to said McManus patent, this defendant alleges that no relief can be granted to plaintiff under this patent on the ground of the laches of the plaintiff and its predecessors in title who have allowed [fol. 11] the subject matter covered by said alleged patent to be manufactured at will by a number of manufacturers of Crown Center Spots since the date of said McManus patent and no protest has been made by this plaintiff or any of its predecessors in title against the use of the

alleged invention covered by the McManus patent, and the subject matter of said McManus patent has been treated by the trade generally as public property and no suit or threat of suit has been made by this plaintiff or its predecessors in title against this defendant or any other manufacturer for infringement of said McManus patent.

For a second and separate defense to the McManus patent No. 1,339,066, defendant alleges that the plaintiff is estopped from maintaining this suit on said patent for the reason that on or about the 13th day of October, 1930, plaintiff, by a letter in writing, admitted that defendant had a right to use the subject matter described and claimed in the McManus Patent No. 1,339,066.

For a third and separate defense to the McManus Patent No. 1,339.066, this defendant alleges that plaintiff is estopped from maintaining this suit by reason of the fact that the alleged invention of the McManus patent is disclosed and claimed in the patent to John Alberti No. 1,199,026, dated September 19th, 1916, on an application filed October 3rd, 1913, which Alberti patent expired on September 19th, 1933, and was and is owned by the present plaintiff and neither the present plaintiff nor its predecessors in title has brought suit or threatened suit on said Alberti patent against this [fol. 12] defendant or any other manufacturer of center spot caps.

For a fourth and separate defense to the McManus Patent No. 1,339,066, this defendant denies that Charles E. McManus was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Letters Patent No. 1,339,066; denies that said Charles E. McManus was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Charles E. McManus of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Charles E. McManus, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters

Patent No. 1,339,066 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Charles E. McManus and/or for more than two years prior to the date of application for said Letters Patent, patented, described or published in the following patents and printed publications, to-wit:

[fol. 13]

French Patents

#415,794, American Cork & Seal Co., dated July 22, 1910;
463,971, Montaner & Co., dated December 31, 1913.

British Patents

#16,075, Demuth of 1913, published July —, 1914;
26,297, MacCormack of November 10, 1910.

United States Letters Patent

#1,199,026, John Alberti, dated September 19, 1916;
903,865, J. A. Jones, dated November 17, 1908;
1,110,138, J. A. Jones, dated September 8, 1913;
993,288, Leonard Bartlett, dated May 23, 1911;
1,195,392, Geo. M. C. Nielsen, dated August 22, 1906;
1,129,578, George F. Knox, dated February 23, 1915,

and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

For a fifth and separate defense to the McManus patent, this defendant alleges that said patent is void for the reason that each and every part thereof and the entire subject matter covered by said alleged Letters Patent had been publicly made, used and sold by The International Cork Co., of Brooklyn, N. Y., at Brooklyn, N. Y., and the Ameri-
[fol. 14] can Cork & Seal Co., of Philadelphia, Pa., at Philadelphia, Pa., more than two years prior to the date of application for said McManus patent No. 1,339,066.

Warth Patent No: 1,899,782, Dated February 28, 1933, on an Application Filed December 17, 1929

For a first and separate defense to the Warth Patent No. 1,899,782, this defendant denies that it has manufactured or sold a coated strip of material for facing bottle caps as set forth in said Warth patent subsequent to the grant of said patent.

For a second and separate defense to the Warth Patent No. 1,899,782, this defendant alleges that the said alleged invention and every part thereof set forth in said patent had been publicly made, used and sold by the Crown Cork & Seal Company of Baltimore City at Baltimore, Md., this defendant, Ferdinand Gutmann & Co., Brooklyn, N. Y., International Cork Co., of Brooklyn, N. Y., at Brooklyn, N. Y., and the American Cork & Seal Company, of Philadelphia, Pa., at Philadelphia, Pa., and others, for more than two years prior to the filing of the application Serial No. 414,614 resulting in alleged patent No. 1,899,782.

For a third and separate defense to the Warth Patent No. 1,899,782, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Letters Patent No. 1,899,782; denies that said Albin H. Warth was entitled to a patent therefor under [fol. 15] the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Albin H. Warth, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,899,782 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery by said Albin H. Warth and/or for more than two years prior to the date of application for said Letters

Patent, patented, described or published in the following patents and printed publications to-wit:

United States Letters Patent

#1,213,926, Charles E. McManus, dated January 30, 1917;
1,638,541, Charles E. McManus, dated August 9, 1927;
1,657,802, Louvern G. Lange, dated January 31, 1928;
1,758,610, Louvern G. Lange, dated May 13, 1930;
983,319, Eugene C. Smith, dated February 7, 1911, et al.;
1,238,156, Reinhold G. Koch, dated August 28, 1917;
1,358,834, Frederick W. Farrell, dated November 16, 1920,

and in various other Letters Patent of the United States and of foreign countries and in numerous other printed [fol. 16] publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

Warth Patent No. 1,899,783, Dated February 28, 1933, on an Application Filed May 5th, 1929

For a first and separate defense to U. S. Letters Patent No. 1,899,783, this defendant alleges that the invention purported to be set forth in said patent is merely for the use of the material described and claimed in U. S. Letters Patent No. 1,899,782 issued to Albin H. Warth and, therefore, that said Letters Patent No. 1,899,783 constitutes double patenting and is null and void.

For a second and separate defense to U. S. Letters Patent No. 1,899,783, this defendant alleges that the said alleged invention and every part thereof set forth in said patent had been publicly made, used and sold by the Crown Cork & Seal Company of Baltimore City, Md., at Baltimore, Md., and this defendant, Ferdinand Gutmann & Co., at Brooklyn, N. Y., and others, for more than two years prior

to the filing of application Serial No. 492,546 resulting in alleged Patent No. 1,899,783.

For a third and separate defense to Warth Patent No. 1,899,783, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged [fol. 17] new and useful improvements purporting to be set forth in Letters Patent No. 1,899,783; denies that said Albin H. Warth was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Albin H. Warth, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,899,783 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Albin H. Warth and/or for more than two years prior to the date of application for said Letters Patent, patented, described or published in the following patents and printed publications, to-wit:

United States Letters Patent

#1,339,066, Charles E. McManus, dated May 4, 1920;
983,319, Eugene C. Smith, et al., dated February 7, 1911;
1,238,156, Reinhold G. Koch, dated August 28, 1917;
1,215,737, George E. Stahl, dated February 13, 1917;
1,779,884, Louvern G. Lange, dated October 28, 1930;
671,191, Edward W. Hanauer, dated April 2, 1901,

[fol. 18] and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publish-

ers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

For a fourth and separate defense to Warth Patent No. 1,899,783, this defendant alleges that the Warth Patent No. 1,899,783 was filed on October 31st, 1930, bearing Serial No. 492,546 and purports to be a division of application Serial No. 360,895, filed May 5th, 1929. That during the prosecution of application Serial No. 360,895 it became involved in an interference with a patent to Louvern G. Lange, No. 1,779,884. That said interference bearing No. 60,931 was terminated without proper judicial determination of priority of invention and without due and proper proceedings in the Patent Office and said Patent No. 1,899,783 is null and void for the reason that Louvern G. Lange is the inventor thereof, if there is any invention in said patent, and not Albin H. Warth, the alleged patentee, and said patent is therefore null and void and confers no rights upon this plaintiff.

For a fifth and separate defense, this defendant denies that it has at any time subsequent to the date of said Letters Patent, made or sold any bottle caps infringing the alleged invention set forth in Patent No. 1,899,783.

[fol. 19] Warth Reissue Patent No. 19,117, Dated March 20, 1934, on an Application Filed January 23, 1934

For a first and separate defense to Reissue patent No. 19,117, this defendant alleges that said Reissue patent is null and void for the reason that the application for reissue was not filed until January 23rd, 1934, which is more than two years subsequent to the date, viz., January 6th, 1931, of the original patent No. 1,788,260; that between the date of the original patent, January 6th, 1931, and the date of the application for reissue of January 23rd, 1934, this defendant had acquired a substantial right and had completed a method of making bottle closures and on July 20th, 1932, filed an application for a patent on said method upon which it had been working for some time prior thereto, and on August 8th, 1933, obtained Letters Patent of the United States bearing No. 1,921,808; that the officers of the plaintiff corporation had inspected and seen the method used by defendant in making its bottle caps prior to the application

for reissue, and the reissue patent was obtained for the express purpose of attempting to cover the method of manufacture employed by defendant prior to the application for reissue. This defendant, further answering, denies that the Original Letters Patent No. 1,788,260, were inoperative as set forth in paragraph V of the Bill of Complaint and denies that the reissue patent No. 19,117 was properly obtained and alleges that plaintiff acquired no rights under said reissue patent No. 19,117.

For a second and separate defense to Reissue Patent No. 19,117, this defendant alleges that it has not at any time [fol. 20] infringed the Warth Reissue Patent No. 19,117.

As a third and separate defense to Reissue Patent No. 19,117, this defendant alleges that the center spot crown caps which it is now making and has been making for a number of years past are made by a method developed by Mr. Benno Cohn covered by patent No. 1,921,808, dated August 8th, 1933, on an application filed July 20th, 1932.

As a fourth and separate defense to Reissue Patent No. 19,117, this defendant alleges that the said alleged invention and every part thereof set forth in said patent had been publicly made, used and sold by the Crown Cork & Seal Company of Baltimore, Md., at Baltimore, Md., International Cork Company of Brooklyn, N. Y., at Brooklyn, N. Y., New Process Cork Company of Brooklyn, N. Y., at Brooklyn, N. Y., and this defendant, Ferdinand Gutmann & Co. at Brooklyn, N. Y., for more than two years prior to the filing of the application for reissue on January 23rd, 1934.

For a fifth and separate defense to Reissue Patent No. 19,117, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Reissue Patent No. 19,117; denies that said Albin H. Warth was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Reissue Patent No. 19,117, but denies that all of the requirements of the statutes then in force [fol. 21] had been duly complied with by the said Albin H. Warth and further denies that any of the proceedings had with relation to the issuance of said Reissue Patent were regular or sufficient to sustain the validity on any ground

of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Reissue Patent No. 19,117 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Albin H. Warth and/or for more than two years prior to the date of application for said Reissue Patent, patented, described or published in the following patents and printed publications, to-wit:

United States Letters Patent

#1,339,066, Charles E. McManus, dated May 4, 1920;
1,213,926, Charles E. McManus, dated January 30, 1917;
1,402,780, Charles E. McManus, dated January 10, 1922;
1,199,026, John Alberti, dated September 19, 1916;
993,288, Leonard Bartlett, dated May 23, 1911,

and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

[fol. 22] Warth Patent No. 1,956,481, Dated April 24, 1934, on an Application Filed June 16, 1933

For a first and separate defense to Warth Patent No. 1,956,481, this defendant denies that it is now or at any time in the past has infringed said patent No. 1,956,481.

For a second and separate defense to Warth Patent No. 1,956,481, this defendant alleges that the claims as filed in application Serial No. 676,190 for this patent were of a limited scope; that thereafter and on or about the 8th day of August, 1933, an officer of the plaintiff corporation called at the plant of the defendant corporation and saw the method and materials used by defendant and was furnished with specimens of caps and materials used by defendant and thereafter and on or about the 23rd day of March, 1934, said application was amended by substituting the

claims now in the patent for those in the original application in an attempt to cover the cap and materials used by the defendant in the manufacture of its bottle closure caps. That the subject matter of said patent is not the invention of Albin H. Warth, but was derived from the defendant herein.

For a third and separate defense to Warth Patent No. 1,956,481, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Letters Patent No. 1,956,481; denies that said Albin H. Warth was entitled to a patent therefor under the provi- [fol. 23] sions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Albin H. Warth, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,956,481 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Albin H. Warth and/or for more than two years prior to the date of application for said Letters Patent, patented, described or published in the following patents and printed publications, to-wit:

United States Letters Patent

#1,199,026, John Alberti, dated September 19, 1916;
1,339,066, Charles E. McManus, dated May 4, 1920;
1,710,453, Maurice V. Hitt, dated April 23, 1929;
1,325,075, Joseph J. Byers, dated December 16, 1919;
1,389,084, Lawson B. Wilson, dated August 30, 1921;
Reissue 16,803, Edmund M. Flaherty, dated November 29, 1927;
1,554,033, Ebener E. Reid, dated September 15, 1925;
983,319, Eugene C. Smith et al., dated February 7, 1911,

[fol. 24] and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

Warth Patent No. 1,967,195, Dated July 17, 1934, on an Application Filed November 7, 1930

For a first and separate defense to Warth Patent No. 1,967,195, this defendant denies that Patent No. 1,967,195 is a division of Patent No. 1,788,260, and this defendant alleges that, if it be held that the subject matter of alleged Patent No. 1,967,195 is disclosed in Patent No. 1,788,260, then Patent No. 1,967,195 is void for the reason that the application for same was not filed until April 4th, 1933, more than two years after the date of issue of Patent No. 1,788,260 which is dated January 6th, 1931. This defendant further denies that the application bearing Serial No. 494,201 is a division of Serial No. 159,743, filed January 17th, 1927, and this defendant denies that Patent No. 1,967,195 is entitled to a filing date of either January 7th, 1927, or November 7th, 1930.

For a second and separate defense to Patent No. 1,967,195, this defendant denies that it has at any time infringed said patent.

[fol. 25] For a third and separate defense to Patent No. 1,967,195, this defendant alleges that the claims of said patent call for a method of manufacturing center spot bottle caps which is substantially the same method as the method shown and claimed in the patent to John A. Johnson, No. 1,852,578, dated April 5th, 1932, which patent is for a "Method and Apparatus for Assembling Linings in Receptacle Closure Caps" on an application filed November 16th, 1929, which patent, on information and belief, is now owned or controlled by plaintiff. That on or about the 28th day of August, 1928, this defendant purchased a machine from John A. Johnson, and shortly thereafter purchased several other machines, made in accordance with the Johnson Patent No. 1,852,578 while said Johnson was still owner of said patent and long prior to the time plain-

tiff acquired any right in said Johnson patent, and this defendant thereby acquired the right to use machines made in accordance with the Johnson Patent and to practice the method covered by said patent and this defendant has since the 28th day of August, 1928, and for more than two years prior to April 4th, 1933 (the filing date of Warth Patent No. 1,967,195), used machines made in accordance with the Johnson Patent and practiced the method set forth in said patent.

For a fourth and separate defense to Warth Patent No. 1,967,195, this defendant alleges, upon information and belief, that the application for said patent was filed for the expressed purpose of getting into interference with claims 28, 29 and 30 of the patent to John A. Johnson, No. 1,852,578 of April 5th, 1932. That thereafter an interference No. [fol. 26] 66,201 was declared between the application for Warth Patent No. 1,967,195 and the Johnson Patent No. 1,852,578, and, thereafter, said interference was settled between the parties thereto and patent No. 1,967,195 was improperly issued to Albin H. Warth without any proper judicial determination by the Patent Office tribunals of the question of priority of invention between the Johnson patent and the Warth application upon which patent No. 1,967,195 issued and patent 1,967,195 is, therefore, null and void because the alleged invention claimed therein, if any, is the invention of John A. Johnson and not the invention of Albin H. Warth and can confer no exclusive rights upon this plaintiff.

As a fifth and separate defense to Warth Patent No. 1,967,195, this defendant alleges that the said alleged invention and every part thereof set forth in said patent had been publicly made, used and sold by American Cork & Seal Co. of Philadelphia, Pa., at Philadelphia, Pa., New Process Cork Co. of Brooklyn, N. Y., at Brooklyn, N. Y., International Cork Co. of Brooklyn, N. Y., at Brooklyn, N. Y., John A. Johnson at Brooklyn, N. Y., this defendant, Ferdinand Gutmann & Co., at Brooklyn, N. Y., and by this plaintiff at Baltimore, Md., for more than two years prior to the filing of the application on April 4th, 1933, for said patent 1,967,195 and prior to any other filing date which may be asserted for said patent.

As a sixth and separate defense to Warth Patent No. 1,967,195, this defendant alleges that all center spot bottle caps it is now making and has been making and selling long prior to the issue of said patent are made in accordance [fol. 27] with the invention of Mr. Benno Cohn covered by Patent No. 1,921,808 granted August 8th, 1933, on an application filed July 20th, 1932.

As a seventh and separate defense to Warth Patent No. 1,967,195, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Letters Patent No. 1,967,195; denies that said Albin H. Warth was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Albin H. Warth, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,967,195 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Albin H. Warth and/or for more than two years prior to the date of application for said Letters Patent, patented, described or published in the following patents and printed publications, to-wit:

[fol. 28] United States Letters Patent

#1,199,026, John Alberti, dated September 19, 1916;
1,339,066, Charles E. McManus, dated May 4, 1920;
1,213,926, Charles E. McManus, dated January 30, 1917;
1,402,780, Charles E. McManus, dated January 10, 1922;
993,208, Leonard Bartlett, dated May 23, 1911;
1,852,576, John A. Johnson, dated April 5, 1932;

1,169,608, Alexander Bogdanffy, dated January 28, 1916;
1,053,565, Alexander Bogdanffy, dated February 18, 1913;
1,053,898, Alexander Bogdanffy, dated February 18, 1913;
468,226, William Painter, dated February 2, 1892,

and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

Fifth. This defendant, further answering the Bill of Complaint herein, is informed and believes, and therefore avers, that each of the six separate Letters Patent upon which suit is brought and the defenses to which have been separately set forth under each of said patents is invalid and void because the said Charles E. McManus and Albin H. Warth are not the original and first inventors and discovers of the alleged inventions purporting to be patented in and by said Letters Patent, but that the same, and every [fol. 29] material and substantial part thereof, was, prior to the alleged inventions by said McManus and Warth invented, if there is any patentable invention described and claimed therein, by or known to and used by the parties of the foregoing United States and foreign Letters Patent, whose residences are stated in their respective patents, at their said places of residence and elsewhere, and by other persons, firms and corporations whose names and addresses are not at present known to this defendant, but which, when ascertained, it prays leave by proper amendment to insert in this answer.

Sixth. This defendant, further answering the Bill of Complaint herein, says that it is informed and believes, and therefore avers, that each of the six Letters Patent enumerated in the Bill of Complaint as specifically, separately answered in this answer is invalid and void because the alleged invention of each of said patents does not constitute

patentable novelty or invention within the meaning of the patent law, in view of the prior art and in view of what was common knowledge, all prior to the date of the alleged invention of the said Letters Patent to Charles E. McManus and the five Letters Patent to Albin H. Warth.

Seventh. This defendant, further answering, says that it is informed and believes, and therefore avers, that the said Charles E. McManus and Albin H. Warth surreptitiously and unjustly obtained each of the six Letters Patent set forth in the Bill of Complaint and a separate defense to each of which has been set up in this answer, for that which was in fact invented by another or others, if said Letters [fol. 30] Patent describe and claim any patentable invention, to-wit: each of the persons named in the patents set up in this answer as a defense to each of the six patents upon which suit is brought, who were using reasonable diligence in adopting and perfecting the same.

Eighth. Further answering the Bill of Complaint herein, this defendant denies the allegations contained in paragraph VI of the Bill of Complaint as to the great value of the alleged inventions to the plaintiff and as to general public acquiescence contained therein, and alleges that no license agreement or agreements based on said patents has, or ever had been made, other than an agreement made by the plaintiff in the year 1933 with practically all the manufacturers of center spot crowns, other than this defendant, which agreement is a price-fixing agreement and the licenses made in accordance with said agreement were made to avoid price cutting and were not made because of any recognition of the validity of the patents in suit. That this agreement was for one year and expired about the time of the beginning of the present suit; upon information and belief that the said license agreements have been renewed and modified in order to continue the price-fixing arrangement. This defendant has no knowledge as to whether said alleged licensees have paid large or any sums, for royalties for the use of said alleged inventions and leaves plaintiff to its proof thereof.

Ninth. This defendant denies the allegations of paragraph VIII of the Bill of Complaint and leaves plaintiff to its proof thereof.

[fol. 31] Tenth. This defendant further answering the Bill of Complaint denies each and every allegation of the Bill of Complaint excepting those admitted or as to which it has no knowledge or information. It denies that the plaintiff is entitled to the relief demanded, or to any relief and prays that the Bill of Complaint be dismissed with costs and for such general, further and other relief as may seem to this Court to be proper.

For an Affirmative Defense and Counterclaim:

This defendant, further answering and for a separate cause of action against the plaintiff, alleges:

First. That heretofore and prior to the 20th day of July, 1932, Benno Cohn, then a citizen of the United States and a resident of Kings County, City and State of New York, was the first, original and sole inventor or discoverer of a certain new and useful improvement in "Method of Making Closures" not known or used by others in this country before his invention or discovery thereof and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, or more than two years prior to his hereinafter mentioned application for Letters Patent of the United States, and not in public use or on sale in this country for more than two years prior to the date of his said application for said Letters Patent in the United States, and which had not [fol. 32] been abandoned nor patented, nor caused to be patented by him or his representatives or assigns in any country foreign to the United States on an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States, as hereinafter mentioned.

Second. That the said Benno Cohn on or about the 20th day of July, 1932, being then, as aforesaid, the first, original and sole inventor or discoverer of the said improvement in "Method of Making Closures," made application in writing to the Commissioner of Patents of the United States for the grant of Letters Patent for said invention, and duly filed on July 20th, 1932, an application for Letters Patent of the United States Serial No. 623,476 disclosing, describing and claiming said invention in accordance with the then existing laws of the United States. Simultaneously with

the execution of said application, the said Benno Cohn duly executed and delivered to this defendant, Ferdinand Gutmann & Co., a corporation of the State of New York, an assignment of the entire right, title and interest in and to said invention on "Method of Making Closures," which assignment contained a request that the Letters Patent to be granted therefor were to issue to the said Ferdinand Gutmann & Co. That the said assignment was duly recorded in the United States Patent Office on or about July 20th, 1932.

Third. That the said Benno Cohn and the defendant herein, having duly complied in all respects with the conditions and requirements of the United States statutes in such cases made and provided and after due examination [fol. 33] by the Commissioner of Patents as to the novelty and utility of said improvement, there were issued to defendant, Ferdinand Gutmann & Co., a New York Corporation, under date of August 8th, 1933, in due compliance with the statutes in such cases made and provided, Letters Patent of the United States No. 1,921,808 whereby there was granted to Ferdinand Gutmann & Co., its successors and assigns, for the term of seventeen years from the 8th day of August, 1933, the full and exclusive right of making, using and vending the said invention throughout the United States and territories thereof, as by the original of said Letters Patent or a duly certified copy thereof in court to be produced, as will more fully appear. Defendant further states that by virtue of the premises aforesaid, it has become and now is the sole owner of the entire right, title and interest in and to said Letters Patent and of all rights and privileges granted and secured thereby, and is entitled to sue for injunctive relief against infringement thereof, and to recover any profits and/or damages arising out of the infringement of said Letters Patent.

Fourth. Defendant further states that the said invention, as aforesaid, is of great utility and value to this defendant and to the public generally; that large numbers of closures made in accordance with and embodying the invention of said Letters Patent No. 1,921,808 have been made and sold by defendant, Ferdinand Gutmann & Co. in very large and constantly increasing quantities; that the invention covered by said Letters Patent is of great importance and value to defendant. That defendant has expended large sums of

[fol. 34] money for installing equipment for the manufacture of closures made in accordance with the invention of said Letters Patent and has been and now is ready to supply the trade and public with closures made in accordance with the invention of said Letters Patent; that the public has generally acquiesced in the usefulness of said improvement and has generally acknowledged and acquiesced in the rights of defendant with respect to said invention and in the validity of said Letters Patent.

Fifth. That upon information and belief, prior to the commencement of this suit and since the granting of said Letters Patent and prior to and within six years from the commencement of this suit, the plaintiff herein named, well knowing the facts as herein set forth, has infringed said Letters Patent against the will of the defendant and in violation of defendant's rights; that plaintiff has been and is now infringing said Letters Patent by making, using and selling closures made by the method set forth and claimed in U. S. Letters Patent No. 1,921,808, all against defendant's will and without defendant's license and consent and notwithstanding the fact that notice was given to said plaintiff of said Letters Patent and of its infringement; and that said plaintiff is threatening to continue and to increase such acts of infringement.

For a Second Affirmative Defense and Counterclaim:

This defendant, further answering and for a second, separate cause of action against the plaintiff, alleges:

[fol. 35] First. That heretofore and during the years 1933 and 1934, the plaintiff caused to be published and widely circulated, and is continuing to publish and circulate, a statement to the effect that plaintiff had issued licenses to practically all the manufacturers of center spot caps and warning the public against buying Center Spot Crown Caps from manufacturers other than itself or its licensees.

Second. Upon information and belief that the plaintiff and the licensees mentioned in said publications are practically the only manufacturers of Center Spot Caps as set forth in paragraph VI of the Bill of Complaint, other than the defendant herein, and said publication was made for the purpose of injuring defendant's trade with the users of said caps and said statement has damaged and will greatly damage the business of defendant in making and selling its Center

Spot Caps in accordance with its own patent No. 1,921,808. Defendant is informed and believes that the plaintiff, through its advertising and statements by its salesmen and representatives, is circulating statements in an effort to induce the trade to believe that users of said caps can only purchase center spot crowns from plaintiff and its licensees without fear of suit for infringement.

Third. Upon information and belief that the plaintiff has entered into an agreement with all or practically all of the manufacturers of strip material for use in the making of Center Spot Caps, granting them a license under patent No. 1,899,782, dated February 28, 1933, which is one of the patents in suit, said license containing therein the provision that [fol. 36] such licensees shall not furnish such strip material to others than licensees under the Center Spot patents in suit referred to herein and by reason thereof manufacturers of such strip material have refused to furnish such material for use in Center Spot Caps to independent manufacturers and to this defendant.

Wherefore, the defendant prays:

1. That an injunction issue against this plaintiff restraining it from publishing any literature and making any statements to the effect that defendant is infringing its patents until the determination of this suit, or enforcing, or attempting to enforce the license agreement as to the sale of strip material.

2. That the amount of damages sustained by defendant by reason of any statement made by plaintiff as to infringement by defendant be ascertained and that defendant have judgment therefor.

3. For a decree adjudging defendant's aforesaid Letters Patent No. 1,921,808 good and valid and owned by the defendant and to have been infringed by the plaintiff.

4. That the plaintiff, its directors, officers, associates, attorneys, clerks, servants, agents, workmen, employees and confederates and each of them, may be perpetually enjoined and restrained by a writ of injunction issued out of and under the seal of this Honorable Court from directly or indirectly manufacturing closures made by the methods set forth in said Letters Patent and using or selling closures made in accordance with said Letters Patent No. 1,921,808.

[fol. 37] 5. For costs and an accounting of profits and damages.

6. Such other and further relief as the circumstances of the case may require.

Ferdinand Gutmann & Co., by Benno Cohn, Secretary. Hauff & Warland, 41 Park Row, New York, N. Y., Attorneys for Defendant. Wm. E. Warland, of Counsel.

Duly sworn to by Benno Cohn. Jurat omitted in printing.

[fol. 38] In United States District Court

[Title omitted]

Reply of Plaintiff to Defendant's Counterclaim

This plaintiff, Crown Cork & Seal Company, Inc., replying to the counterclaim set up by the defendant, Ferdinand Gutmann & Co., in conjunction with the answer to the bill of complaint herein, is advised and therefore on information and belief avers as follows:

I. Answering the first affirmative defense and counterclaim, plaintiff denies each and every allegation of Paragraphs First, Second, Third and Fourth, except that plaintiff admits that on July 20, 1932, said Benno Cohn made application in writing to the Commissioner of Patents of the United States for the grant of Letters Patent for an alleged invention in "Method of Making Closures," Serial No. 623,476, and that Letters Patent of the United States No. 1,921,808 was granted on August 8, 1933, to Ferdinand Gutmann & Co. on said application, and except that plaintiff has no knowledge as to the assignment of said application to Ferdinand Gutmann & Co., and as to the making [fol. 39] and selling of large numbers of closures made in accordance with and embodying the invention of said Letters Patent No. 1,921,808 by defendant Ferdinand Gutmann & Co.,and as to the expenditure by defendant of large sums of money for installing equipment for the manufacture of closures made in accordance with the alleged invention of said Letters Patent. Plaintiff denies each and

every allegation of Paragraph Fifth of the first affirmative defense and counterclaim of the answer herein.

II. Answering the second affirmative defense and counterclaim of the answer herein: (1) Plaintiff denies each and every allegation of Paragraph First of said counterclaim; (2) plaintiff denies each and every allegation of Paragraph Second of said counterclaim, except that plaintiff admits that it and its licensees are practically the only manufacturers of center spot crown caps, as set forth in Paragraph VI of the bill of complaint, other than the defendant herein; (3) plaintiff neither admits nor denies the allegations of Paragraph Third of said second affirmative defense and counterclaim and avers that the same are impertinent, immaterial and irrelevant and that the same should be stricken from said counterclaim.

Gifford, Scull & Burgess, Solicitors for Plaintiff. Of Counsel: John J. Darby.

December 10th, 1934.

[fol. 40] In United States District Court

[Title omitted]

Plaintiff's Bill of Particulars as to Claims Relied On

At the trial hereof, plaintiff will rely on the following claims:

Reissue patent No. 19,117—claims 1 and 3.
Patent No. 1,899,782—claims 4, 7 and 9.
Patent No. 1,899,783—claims 4 and 5.
Patent No. 1,956,481—claims 5, 6 and 16.
Patent No. 1,967,195—claims 1, 2 and 3.
Patent No. 1,339,066—claims 2, 3, 4 and 8.

Gifford, Scull & Burgess, Solicitors for Plaintiff.

December 28, 1934.

[fol. 41] IN UNITED STATES DISTRICT COURT

[Title omitted]

ANSWER OF DEFENDANT TO PART OF PLAINTIFF'S MOTION FOR BILL OF PARTICULARS

The defendant states in answer to subdivision 2 of the motion for bill of particulars that in reference to the McManus patent in suit #1,339,066 it will rely upon the two patents to Jones, viz., 903,865 and 1,110,138, as showing the state of the art and that it will rely upon all the other patents, both foreign and United States, set up in its answer to the McManus patent as anticipations.

As to patent to Warth #1,899,783, the defendant states that it will rely on the patent to Hanauer #671,191 as showing the state of the art and will rely on the other patents set up in its answer to the Warth Patent #1,899,783 as anticipations.

As to the other four patents set up in the bill of complaint, the defendant will rely upon all the patents set up in its answer as anticipations.

Dated New York, December 31st, 1934.

Hauff & Warland, Attorneys for Defendant.

Service of a copy of the above admitted this 31st day of December, 1934.

Gifford, Scull & Burgess, Attorneys for Plaintiff.

[fol. 42] IN UNITED STATES DISTRICT COURT

[Title omitted]

ORDER FOR BILL OF PARTICULARS, ETC.—January 11, 1935

Plaintiff's motion for a bill of particulars and/or further and better statement of certain of the alleged defenses set forth in the answer and counterclaim of the defendant filed herein having come on to be heard, now, after hearing counsel and upon due consideration it is hereby

Ordered, that the defendant, within ten days from the date hereof, serve upon plaintiff's solicitors and file a bill

of particulars and/or further and better statement of certain of the alleged defenses set forth in the answer and counterclaim setting forth and specifying, fully and particularly, the following matters.

[fol. 43]

I

Separately with respect to each of the patents here in suit, the name of each person upon whom the defendant will rely at trial of this suit as having effected a prior public use or sale of the inventions of the patents in suit more than two years prior to the filing of the applications therefor as alleged in Paragraph Fourth of the answer; and with respect to each such prior public use or sale:

(a) When and where the alleged prior public use or sale took place.

(b) With whose knowledge the alleged prior use or sale took place.

(c) Whether any of the articles or machines embodying any alleged prior public use or sale are still in existence, and, if so, when and where they can be inspected by plaintiff's counsel.

(d) With respect to any articles or machines which are not in existence and cannot be examined by plaintiff's counsel, furnish plaintiff with detailed drawings or blue prints and detailed description of the devices or apparatus of such alleged prior use or uses, if any.

II

Separately with respect to each of the patents in suit, what patents and publications referred to in Paragraph Sixth of defendant's answer will be offered in evidence at the trial of the cause to illustrate the prior art and what [fol. 44] was common knowledge prior to the date of the alleged inventions of the patents in suit; and of those so offered on which defendant will rely at such trial in support of the contention of anticipation of the patents in suit.

III

Separately with respect to each patent in suit, in addition to what is demanded in Paragraph II above, state what was "common knowledge" prior to the inventions in suit,

which defendant relies upon as establishing the invalidity of the patents in suit as set forth in Paragraph Sixth of the answer.

IV

Separately with respect to each of the patents here in suit, the name of each person upon whom the defendant will rely at trial of this suit as having had the prior knowledge and/or use of the inventions of the patents in suit as alleged in Paragraph Fifth (p. 17) of the answer, and with respect to each such prior inventor:

(a) When, where and with whose knowledge the alleged prior invention was made.

(b) The date upon which each prior structure, device, article, process or method was conceived, disclosed, and first reduced to practice by the alleged prior inventor thereof.

(c) The date or dates upon which sketches, drawings, or description (upon which defendant will rely) were made [fol. 45] by, for, or by the direction of, each such alleged prior inventor, illustrating or describing such alleged prior invention; and as to each such sketch, drawing or description, whether or not it is now in existence; and if in existence, to furnish a copy thereof.

(d) The date and place of each disclosure (upon which defendant will rely) of each such alleged prior invention to others by the alleged inventor, together with the names of the persons to whom each such disclosure was made and whether each such disclosure was oral or in writing; and if in writing, whether or not each such writing is now in existence; and if in existence, to furnish a copy thereof.

(e) The date or dates upon which any structure, device or article (upon which defendant will rely) was constructed embodying or adapted to operate in accordance with such alleged prior invention; and as to each such structure, device or article, whether or not it is now in existence; also where and to what extent it was operated and to what person or persons its construction and operation were known; and a complete description by words and drawing of each such structure, device or article.

(f) If any of the structures, devices or articles of the prior inventions or experiments are in existence, state where they can be inspected by plaintiff's counsel.

(g) If any of the structures, devices or articles of the above referred to are not in existence, or if defendant does [fol. 46] not know where the same can be inspected, then produce full or working drawings of the same.

(h) If defendant has not knowledge as to the present existence or whereabouts of the structures, devices or articles first reduced to practice, then state where plaintiff's counsel can inspect the earliest existing structures, devices or articles constituting such reduction to practice.

(i) Whether the structures, devices, or articles referred to were ever in public use or on sale.

(j) When and where and with whose knowledge any alleged public use or sale took place.

(k) Whether any of the structures, devices or articles referred to were actually used and/or reduced to practice.

(l) When and where, and with whose knowledge, any actual use and/or reduction to practice of such devices took place.

V

With respect to defendant's counterclaim and the allegation in Paragraph Fifth thereof that plaintiff has infringed the patent to Cohn, No. 1,921,808, August 8, 1933:

(a) State the steps in plaintiff's process that defendant will rely upon at trial to establish infringement of said patent by plaintiff.

[fol. 47] (b) State when and how notice of plaintiff's alleged infringement was given plaintiff by defendant.

(c) State how plaintiff is threatening to continue and increase its alleged infringement, and it is further

Provided that in answering items I and IV defendant shall not be required to give the names of its witnesses,

Ordered, that at the same time, the plaintiff serve upon defendant's solicitors and file a statement giving the dates, approximately, of invention and reduction to practice of each patent sued upon, and it is further

Ordered, that if such bill of particulars and/or further and better statement of the matters specified are not filed within ten (10) days from the entry of this order and copies served upon plaintiff's solicitors within such time so much of defendant's answer as refers to the alleged prior inventions, uses, knowledge, manufacture, etc., be stricken out and that the defendant be debarred from taking any testimony relating thereto, or receiving any benefit therefrom.

Grover M. Moscowitz, United States District Judge.

Approved as to form. Hauff & Warland, Solicitors for Defendant.

[fol. 48] IN UNITED STATES DISTRICT COURT

[Title omitted]

ANSWER OF DEFENDANT TO ORDER FOR BILL OF PARTICULARS

Item I of Order

As to the McManus patent in suit, #1,339,066, in answer to sub-division (a) of item 1 of the order for Bill of Particulars, center spot caps made in accordance with the Neilsen patent #1,195,392, set up in the answer, have been continuously manufactured since about the year 1908 by the United Cork & Seal Company of Millis, Mass., at Millis, Mass., and by others at different times during the period since 1908.

(2) Center spot caps made in accordance with the Bartlett patent #993,288, set up in the answer, were made about the year 1909 by the American Cork & Seal Co., of Philadelphia, Pa., at Philadelphia, Pa., and were manufactured in large quantities. Such caps were subsequently made by the successors to the American Cork & Seal Co., the Standard Cap and Seal Co., of Philadelphia, Pa.

[fol. 49] (3) Center Spot Caps made in accordance with the patent to Alberti #1,199,026 were manufactured and sold by the International Cork Co., of Brooklyn, N. Y., at Brooklyn, N. Y., in the summer of 1913.

(b) The officers and employees of each of said corporations and by the purchasers and users of such center spot

caps, which caps were extensively used about the dates stated and have been continuously used since the dates above mentioned.

(c) The defendant is endeavoring to locate center spot caps made at that time, but by reason of the nature of the use of these caps it is practically impossible to ascertain definitely whether any caps made at the dates above set forth are in existence now. The defendant is informed and believes that certain machines manufactured about the times specified are still in existence, some of them in the possession of the plaintiff. Defendant is informed and believes that some machines made for making the Neilsen cap are now in the possession of the Bond Manufacturing Co., of Wilmington, Delaware, who succeeded to the business of the American Cork & Seal Co.

As to caps under the Alberti patent, there are on record in the Patent Office, specimens and photostats and an affidavit in the file of that patent, showing caps made in accordance with the Alberti Patent #1,199,026.

Defendant has no control over such machines or such center spot caps, enabling plaintiff to inspect same.

[fol. 50] (d) The answer to (c) applies as to this question, except that defendant has no detailed drawings or blue prints or detailed descriptions of the center spot caps or machines other than as contained in the patents set up in the answer.

With respect to Patent in suit to Warth, #1,899,782, in answer to sub-division (a) Item 1 of the Bill of Particulars, strip material has been used by defendant Ferdinand Gutmann & Co., in its plant at Brooklyn, N. Y., since the latter part of 1924 or early part of 1925, in the manufacture of center spot crown caps.

2. In its manufacture of center spot caps as stated in answer to (a) the American Cork & Seal Co., of Philadelphia, Pa., and certain of its successors, used strip material, as disclosed in the patent to Bartlett #993,288 in connection with an adhesive coating applied during the application of the center spot to the gasket, about the year 1909.

3. The International Cork Co., at Brooklyn, N. Y., in the Summer of the year 1913 and prior to July of that year, using a strip of facing material which was coated with the

adhesive during the application of the center spot to the cushion disc.

4. New Process Cork Co., of Brooklyn, N. Y., in the year 1916 and subsequently thereto, produced at Hoboken, N. J., and Brooklyn, N. Y., center spot caps in which the strip material shown in patent #1,213,926 to Charles E. McManus, president of the plaintiff herein, was used in the [fol. 51] production of center spot caps, by means of a machine shown in patent #1,402,780 to said Charles E. McManus, said patents call for the use of strip material having a coating of adhesive applied to one surface thereof, by means of which the center spots were cemented to the cushion disc.

5. The Crown Cork & Seal Co., of Baltimore City, a predecessor of the plaintiff, has used continuously since 1915, in the manufacture of bottle caps, both metal foil and express or kraft paper having one surface varnished, and having bonded to the other surface thereof a coating of gutta percha. These caps were produced at Baltimore, Md., and have been extensively used throughout the United States, and included center spot caps.

As to (b) and (c) the same answer is made as to these letters in answering the question as to McManus patent, except that the defendant has in its possession caps made at least as early as the latter part of 1924 and December, 1926, which are available to the plaintiff at any time.

As to Warth Patent in suit, #1,899,783, the same users and dates of use and reference to patents that are given in connection with #1,899,782 apply to #1,899,783.

Warth Reissue patent #19,117. The same users and dates of use and references to patents that are given in connection with patents #1,899,782 and 1,899,783 apply to Reissue patent #19,117.

Warth patent #1,956,481, defendant used the adhesive and the method of producing center spot caps as disclosed [fol. 52] to the plaintiff on August 8th, 1933, as alleged on page 12 of the answer, as early as May, 1932.

2. Such use was with the knowledge of the officers and employees of the defendant.

3. Defendant has in its possession caps so made at the time stated, which may be inspected by the plaintiff at any

convenient time, although plaintiff has already been accorded an inspection of the machines used in the production of such caps.

In view of 3, no answer is required to (d).

Warth patent in suit, #1,967,195. The method set forth in #1,967,195 was practiced by each of the users set forth in the answer to the bill of particulars as heretofore specified and in addition by purchasers of machines from John A. Johnson at Brooklyn, N. Y., and elsewhere since the Fall of 1927 and by the defendant at Brooklyn, N. Y., as early as the Summer of 1928. The practice of this method by defendant was discontinued in the year 1932.

Item II

Defendant has already served upon plaintiff's attorneys a list of patents upon which it relies, both as showing the state of the art and as anticipation of the patent in suit.

Item III

The "common knowledge" referred to in the answer and in Item III of the order for bill of particulars is the knowledge of facts that are well known to the entire bottle [fol. 53] closure art referred to as being well known in a number of patents in suit. Also the extensive use by both manufacturers and bottlers of the various caps covered by the various patents in suit.

Item IV

In answer to Item IV of the order for bill of particulars, requiring particulars of prior knowledge and/or use, of invention set forth in the patents in suit and invention and date of invention or inventor and dates of conception, disclosure and reduction to practice, of the inventions disclosed in the patents set up in the answer and referred to on page 17 of the answer, Par. 5, defendant states:

As to MeManus Patent #1,339,066, as to the two French patents #415,794 and 463,971 and the English patent to DeMuth #16,075 of 1913, defendant has no knowledge of the circumstances of the origin of the center spot caps shown therein, beyond the disclosure of said patents, and will rely upon the filing and publication dates of such patents, as showing general prior public knowledge of the contents of said patent.

As to the United States patents to Nielsen and to Bartlett and to Knox, defendant has no knowledge as to the date of origin of the center spot caps shown in these patents and will rely upon the filing date of each of these patents, as showing prior knowledge of the contents of said patents by the patentees.

As to the patent to John Alberti, No. 1,199,026, defendant is informed and believes that John J. Alberti origi- [fol. 54] nated the center spot cap of said patent in the summer of 1913, and he and other officers and employees of the International Cork Company, at Brooklyn, N. Y., had knowledge of such center spot cap at that time. Said International Cork Company was a predecessor of plaintiff, and all data in relation to said center spot cap is therefore in possession of and available to and within the particular knowledge of plaintiff.

Warth patent in suit #1,899,782, defendant states as to the U. S. Patents to

McManus, 1,213,926
McManus, 1,638,541
Lange, 1,657,802
Smith, 983,319
Koch, 1,238,156

defendant has no knowledge of the date of origin of the material shown in these patents and will rely upon the filing date of each of these patents and the issue date thereof as showing prior and public knowledge of the contents of said patent by the patentees and others.

As to Lange patent #1,758,610, defendant is informed and believes the invention was made between November 15th, 1918 and March 1st, 1919, with the knowledge of officers and employees of the Standard Insulation Co. of Rutherford, New Jersey, at that time. The said Lange patent was in interference #60,878, with the application for Warth patent #1,899,782, and plaintiff, therefore, has better knowledge of all the facts surrounding the Lange invention than defendant.

[fol. 55] Warth patent in suit #1,899,783. Defendant states as to the patents to

McManus, #1,339,066,
Smith, #983,319,
Koch, #1,238,156,
Stahl, #1,215,737,

defendant has no knowledge of the date of origin of the center spot caps shown in these patents and will rely upon the filing date and date of issue of these patents as showing prior and public knowledge of the contents of said patent by the patentees and others.

As to the Lange patent #1,799,884, that patent became involved in an interference #60,931, with an application Serial No. 360,895 (subsequently abandoned by plaintiff) of the patentee Warth, of which Application Serial No. 492,546 of the above patent is alleged to be a division, and defendant is informed and believes that the subject matter of the invention of said application originated with Lange between November 15th, 1918 and March 1st, 1919, and was known to Lange and to other officers and employees of the Standard Insulation Company at Rutherford, New Jersey, at that time. The said invention was reduced to practice on January 1st, 1919, and was used subsequent to that date to a considerable extent. In the Patent Office record of this interference, there is evidence offered by this plaintiff, showing that the subject matter of the interference has been in public use and sale continuously by plaintiff and others, since 1915 and 1916. This is particularly within the knowledge of the plaintiff.

[fol. 56] As to Warth re-issue patent in suit #19,117. Defendant states as to U. S. Patents

McManus, #1,339,066,
McManus, #1,213,926,
McManus, #1,402,780,
Bartlett, #993,288,

defendant has no knowledge as to the date of origin of the center spot caps shown in these patents and will rely upon the filing date and the issue date of each of these patents as showing prior public knowledge of the contents of the patents.

The desired information as to Alberti patent #1,199,026 has previously been given in connection with the patent to McManus, #1,399,066.

As to Warth patent in suit #1,956,481, defendant states as follows:

The information as to Alberti has already been given.
As to U. S. Patents,

#1,339,066 to McManus,
#1,710,453 to Hitt,
#1,325,075 to Byers,
#1,389,084 to Wilson,
Re-issue #16,803 to Flaherty,
#1,554,033 to Reid,
#983,319 to Smith,

defendant has no knowledge of the date of origin of the adhesive used in the center spot caps described in said letters patents but will rely upon the filing date and the date of issue of each of these patents as showing prior public knowledge of the contents of the patents.

[fol. 57] Defendant made the center spot caps complained of, using an open market cement manufactured by the Du-Pont Company, with the knowledge of the officers and employees of defendant as early as May, 1932, and plaintiff's vice president and counsel were shown on the 8th day of August, 1933, the machine and materials used by defendant in the production of its center spot caps. The cement used by defendant is known as DuPont #4,620, Thermo Plastic cement.

Warth Patent in Suit #1,967,195.

As to the patent to Alberti #1,199,026, information has previously been given regarding this patent.

As to patents to

McManus, #1,339,066,
McManus, #1,213,926,
McManus, #1,402,780,
Bartlett, #983,808,
Bogdanffy, #1,169,608,
Bogdanffy, #1,053,565,
Bogdanffy, #1,053,898,
Painter, #468,226,

defendant has no knowledge as to the date of origin of the methods described in these patents and will rely upon the filing date and issue date of each of these patents as showing prior public knowledge of the contents of these patents.

As to Johnson patent #1,852,578, the Warth application for patent #1,967,195 was filed for the express purpose of obtaining an interference with the Johnson patent #1,852,578. This interference was numbered 66,201. Before

[fol. 58] the termination of the interference proceeding an interest in the Johnson patent was acquired by the plaintiff.

Defendant is informed and believes that the invention of the Johnson patent was conceived in the Fall of 1925, the drawings were made of said machine between the Fall of 1925 and the Fall of 1927. That the disclosures of the invention of Johnson were made in the Fall of 1926, and that the machines of the Johnson patent were openly offered on the market as early as the Fall of 1927. Defendant purchased machines from Johnson in the Summer of 1928, and used such machines in its business in making center spot caps. The plaintiff, having acquired some interest in the Johnson patent, the facts as to this patent and the proceedings in the interference are particularly within the knowledge of the plaintiff.

As to the information called for by sub-divisions lettered (e) to (k) on page 4 of the order for bill of particulars, defendant makes the same statement that it made under sub-divisions (b) to (d) in its answers relating to the McManus patent in suit #1,339,066.

As to (1) set forth on page 5 of the order for bill of particulars, defendant refers to the prior part of its answer to the bill of particulars in connection with the McManus patent #1,339,066.

Item V

As to sub-division (a), all stages.

(b) Plaintiff's vice president and plaintiff's counsel were notified of the issuance of this patent and were permitted [fol. 59] to observe the practice of the method at defendant's factory on August 8th, 1933.

(c) Defendant was informed by an officer of the plaintiff that the plaintiff had practiced the invention and had the right to do so at any time and would do so if it desired.

Dated, New York, January 18th, 1935.

Ferdinand Gutmann & Co., by Benno Cohn, Secretary. Hauff & Warland, Attorneys for Defendant.

Duly sworn to by Benno Cohn. Jurat omitted in printing.

[fol. 60] IN UNITED STATES DISTRICT COURT

[Title omitted]

PLAINTIFF'S BILL OF PARTICULARS AS TO DATES OF CONCEPTION, ETC.

At the trial hereof plaintiff will rely on the following dates of conception and reduction to practice of the several patents in suit:

Patent	Conception	Reduction
1,339,066	Fall of 1913	Fall of 1913
Re.19,117	Fall of 1924	Early in 1927
1,967,195	Fall of 1924	Early in 1927
1,899,782	Early in 1921	Early in 1921
1,899,783	Early in 1925	Early in 1925
1,956,481	Early in 1926	Fall of 1926

Gifford, Scull & Burgess, Solicitors for Plaintiff.

January 21, 1935.

[fol. 61] IN UNITED STATES DISTRICT COURT

[Title omitted]

MOTION FOR FURTHER PARTICULARS

Now comes plaintiff, by its solicitors Gifford, Scull & Burgess, and moves that an order be entered herein directing defendant to answer sub-paragraphs (c) and (d) of Item 1 of said order dated January 11, 1935, fully and specifically as to each of the prior users set up against patents in suit Nos. 1,899,782, 1,899,783 and 1,967,195 and Reissue patent 19,117, except that defendant is not required to give any further particulars in relation to patent No. 1,967,195 as to alleged prior uses by purchasers of machines from John A. Johnson.

Plaintiff further moves that such order shall direct defendant to answer specifically and in detail the following

questions as part of its answers to sub-paragraphs (c) and (d) of Item 1 of said order dated January 11, 1935:

I. Referring to Warth patent 1,899,782, in suit and defendant's particulars heretofore given:

1a. As to the alleged prior use by defendant, give a description, including the kind of material in the strip and [fol. 62] the kind of adhesive thereon, if any, and state whether said adhesive was applied to said strip material before or after the center spot was punched therefrom.

1b. As to the alleged prior use by defendant, were center spot crown caps made with the strip described in answer to the foregoing question (1a), sold and, if so, to whom, giving the earliest date of such sale.

2. As to the alleged prior use by the American Cork & Seal Co. of Philadelphia, Pa., and certain of its successors, give a description of the strip, including the kind of material thereof and the adhesive, if any, applied thereto, and state whether the adhesive was applied to the strip material before or after the center spots were punched from said strip material.

3. As to the alleged prior use by International Cork Co., give a description of the strip, including the kind of material thereof and the adhesive, if any, applied thereto, and state whether the adhesive was applied to the strip material before or after the center spots were punched from said strip material.

4. Referring to the answers of defendant to the order for bill of particulars heretofore filed, and particularly to the answer beginning the third line from the bottom of page 3 thereof, to which of the alleged prior uses do the caps referred to in said answer specifically relate, and who made the respective caps referred to in said answer.

[fol. 63] II. As to each of the alleged prior uses by defendant, by American Cork & Seal Co. and certain of its successors, and by International Cork Co. of the inventions of Warth patent 1,899,783, in suit and defendant's particulars heretofore given, state whether any of the alleged caps made by any of said alleged prior users are in existence and, if so, where and when they can be inspected by plaintiff's representatives and, if no such caps are in existence

to defendant's knowledge, give a description of the caps on which defendant will rely as to each said prior use, particularly a description of the center spot in each case, including the kind of material of the center spot and the adhesive, if any, used therewith.

III. As to each of the alleged prior uses by defendant, by American Cork & Seal Co. and certain of its successors and by International Cork Co. of the inventions of Warth Reissue 19,117, in suit and defendant's particulars heretofore given, give a description of the method upon which defendant will rely, including a description of the materials of the center spot and the adhesive, if any, used therewith and state whether the center spot material used in such method was in strip form and, if so, whether the adhesive was applied thereto before the center spot was punched therefrom and the kind of adhesive so applied, and if the method was carried out by a machine, give a drawing of such machine, unless such machine is still in existence and can be examined by plaintiff's representatives and if the latter, state when and where such inspection may be had.

[fol. 64] IV. As to each of the alleged prior uses by defendant, by American Cork & Seal Co. and certain of its successors, and by International Cork Co. of the inventions of Warth patent 1,967,195, in suit and defendant's particulars heretofore given, give a description of the method upon which defendant will rely, including a description of the materials of the center spot and the adhesive, if any, used therewith and state whether the center spot material used in such method was in strip form and, if so, whether the adhesive was applied thereto before the center spot was punched therefrom and the kind of adhesive so applied, and if the method was carried out by a machine, give a drawing of such machine, unless such machine is still in existence and can be examined by plaintiff's representatives, and if the latter, state when and where such inspection may be had.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
John J. Darby, of Counsel.

January 26, 1935.

[fol. 65] IN UNITED STATES DISTRICT COURT

[Title omitted]

DEFENDANT'S VOLUNTARY ANSWERS TO FURTHER PARTICULARS

Warth Patent #1,899,782: In answer to subdivision 1a defendant states that the strip material used by it in its plant at Brooklyn, N. Y., in the latter part of 1924, or early part of 1925, in the manufacture of center spot crown caps, consisted of metal foil strip material. The adhesive used was gutta percha applied to the strip before the center spot was cut out.

Defendant further states that it had made and sold caps for bottles prior to said date (not center spot crowns) containing liners cut from strip material comprising varnished paper and a compressible backing, bonded together by a heat fusible adhesive before the discs were cut out. Both strips were made by others than defendant.

In answer to sub-division 1b, center spot crowns referred to in said question were sold about December, 1924. Defendant declines to state the name of its customer unless ordered to do so by the Court.

In answer to sub-division 2 defendant states that the prior uses by the American Cork & Seal Company of Phila-[fol. 66] delphia, Pa., and certain of its successors, consisted in using a strip of metal foil having a heat fusible adhesive which was applied to the strip material after the center spots were punched from said material.

In answer to sub-division 3 as to the alleged prior use of International Cork Company, defendant states that the material of the strip was metal foil and the adhesive was albumen applied to the strip material after the center spots were punched from said strip material.

Defendant further states that a strip material consisting of varnished paper having an adhesive of gutta percha bonded to one side thereof, was made and sold by Crown Cork & Seal Co., of Baltimore City, Md., as early as 1915, and continuously thereafter as appears from the proceedings in Interference #60,878, in which the application for Warth patent #1,899,782, was involved before its issue.

In answer to sub-division 4, defendant states that as to caps not made by it, it believes they were made by the Crown Cork & Seal Co., of Baltimore City, Maryland.

Warth Patent #1,899,783: In answer to paragraph II of the motion for further compliance with the order for bill of particulars, defendant states that as to its own prior use, it made bottle closures consisting of a metal shell with a natural cork lining adhered to the metal back by means of an adhesive paper collet; a center spot consisting of metal foil having a gutta percha adhesive between same and the lining co-extensive in area with the center spot, the gutta percha being applied to a strip of metal foil before cutting [fol. 67] the center spot therefrom. Defendant has not found any of such caps, but if it does find such caps, it will gladly allow plaintiff an inspection of same before the trial.

As to the American Cork & Seal Co., defendant has no caps made by that company in its possession and a description of same is found in the patent to Bartlett #993,288.

As to the International Cork Company caps, defendant has no caps made by that company in its possession at the present time. Reference is made to the Albert patent #1,199,026, samples of said caps are on file in the Patent Office with the file wrapper of the Alberti patent.

As to both the Bartlett and the Alberti patents, if defendant can find such caps, it will be glad to allow plaintiff's counsel to inspect same.

Defendant also refers plaintiff's counsel to the interrogatories now on file in this suit and defendant will also rely upon the proceedings had in Interference #60,931, upon which the Warth patent in suit #1,899,783, was issued.

Defendant also will rely upon the caps shown and described in abandoned application by Warth, Serial Number 130,631.

Warth Re-issue #19,117: In answer to paragraph III defendant states that as to its own prior use set up on page 6 of the answer, the center spot caps were made on a modified form of Clark machine, Patent #1,134,031, and the method used was substantially as follows: the cork disc of a previously assembled cap was heated while descending a chute from the hopper to the cap feeding mechanism of the machine. Center spot discs were cut, with a cold [fol. 68] punch, from a strip of metal foil having gutta percha bonded to the lower face thereof and deposited upon the heated cork disc. The cap was then placed under pressure until the gutta percha hardened. The modification of the Clark machine above referred to consisted in changes in the ordinary strip feeding mechanism of that

machine and the disconnection of the cork disc feeding mechanism.

This modified form of the Clark machine is not now in existence and there are no drawings of same.

Later and as early as 1928, defendant purchased and used the machine of the Johnson patent #1,852,578 (as set forth on page 14 of Answer), and followed the method of that patent until 1932. Later defendant abandoned the Johnson method and made caps by the method described in the patent to Benno Cohn.

As to the alleged prior use of the American Cork & Seal Company and its successors, defendant is informed and believes that the center spot caps made by it were made by the method disclosed in the Bartlett patent No. 993,288 and that the strip material was metal foil, having a heat fusible adhesive applied to it after the center spot was punched therefrom.

As to the alleged prior use by International Cork Company, defendant is informed and believes that the center spot crowns made by said Company were made in accordance with the patent to Alberti No. 1,199,026. That the strip material was metal foil and the adhesive used was albumen; that the adhesive was applied to the center spot after it was punched from the strip of material; that the method used by [fol. 69] International Cork Company was that disclosed in the Alberti patent aforesaid and the Alberti, et al. patent #1,401,300.

That the machines referred to in Q. III are not in existence so far as defendant is aware, unless such machines are in the possession of plaintiff, and that there are no drawings of said machines, other than those shown in the Clark and Alberti, et al. patents.

Warth Patent #1,967,195: In answer to paragraph IV of the motion for further bill of particulars, defendant states that as to its own alleged prior use, the strip material was both metal foil and paper, principally metal foil, having gutta percha bonded thereto or fed separately, or coated with DuPont adhesive 4620 before the center spot was cut from the strip material. The methods used by defendant were a modification of the procedure of the machine of the Clark patent No. 1,134,031, the procedure of the machine of the Johnson patent No. 1,852,578 and the procedure of the Cohn patent No. 1,921,808.

The machine used in the Cohn method is in defendant's possession and was shown to the Vice-President and Counsel of plaintiff on August 8th, 1933. The modified Clark machine and the Johnson machine used by defendant are no longer in existence, and defendant has no drawings of said machines other than shown in the Clark patent No. 1,134,031 and the Johnson patent No. 1,852,578 and the Cohn patent No. 1,921,808.

That as to the alleged prior uses by the American Cork & Seal Company and certain of its successors and by the [fol. 70] International Cork Co., the answer made to Q. III applies to Q. IV.

Dated, New York, February 6th, 1935.

Ferdinand Gutmann & Co., by Benno Cohn, Secretary. Hauff & Warland, Attorneys for Defendant.

Duly sworn to by Benno Cohn. Jurat omitted in printing.

[fol. 71] In United States District Court

[Title omitted]

Notice re State of the Art References

Sirs:

You will please take notice that upon the trial of the above entitled cause we shall refer to the following patents, not as anticipations, but simply as showing the state of the art:

Painter, #792,284, June 13, 1905;
Painter, 887,838, May 10, 1908;
Wheeler, 887,883, May 19, 1908;
Alberti, 1,401,300, Dec. 27, 1921;
Marsa, 1,603,786, Oct. 19, 1926;
Keeran, 957,064, May 3, 1910;
Warth, 1,867,637, July 19, 1932;
Warth, 1,788,260, Jan. 6, 1931;
Recht, 796,356, Aug. 1, 1905;
Johnson, 408,177, July 30, 1889;
Warth, 1,908,498, May 9, 1933,

and possibly others.

Yours, etc., Hauff & Warland, Attorneys for Defendant, 41 Park Row, New York, N. Y.

[fol. 72] To Messrs. Gifford, Scull & Burgess, 141 Broadway, New York, N. Y., Attorneys for Plaintiff.

Service of a copy of the within notice is admitted this — day of May, 1935.

Gifford, Scull & Burgess, Attorneys for Plaintiff.

In United States District Court

[Title omitted]

Stipulation as to Shipments

It is Stipulated and Agreed that the information as to defendant's sales of crown caps for the years 1924 to 1927, as requested from the witness Cohn by plaintiff, is as follows:

[fol. 73] Defendant's Crown Shipments 1924-1927

	Without Center Spots	With Center Spots	Total
1924	649,649 gross	729 gross	650,378 gross
1925	798,149 "	12,396 "	810,545 "
1926	1,000,897 "	11,089 "	1,011,986 "
1927	851,796 "	12,608 "	864,404 "

It is Also Stipulated and Agreed that a copy of the license agreement, of which the Supplemental Agreement referred to in the answer to Interrogatory 10 (Exhibit OOOO) is a supplement, may be attached to said Supplemental Agreement with the same force and effect as if it had been originally incorporated in such answer.

George F. Scull, Counsel for Plaintiff. Hauff & Warland, Counsel for Defendant.

New York, N. Y., December 9, 1935.

Ordered, that the foregoing stipulation be incorporated with the same force and effect as if the evidence referred to therein had been offered at the trial.

Marcus B. Campbell, U. S. D. J.

[fol. 74] IN UNITED STATES DISTRICT COURT, EASTERN DISTRICT OF NEW YORK

CROWN CORK & SEAL CO., INC., Plaintiff,

vs.

FERDINAND GUTMANN & Co., Defendant

Statement of the Evidence

Before Hon. Marcus B. Campbell, U. S. D. J.

Brooklyn, N. Y., November 6, 1935.

APPEARANCES

George F. Scull, Esq., and John J. Darby, Esq., Solicitors for Plaintiff.

Hauff & Warland, Esqs., Solicitors for Defendant, by William E. Warland, Esq., Francis H. Warland, Esq., and N. L. Leek, Esq., of Counsel.

(Mr. Scull made an opening statement on behalf of the plaintiff.)

OFFERS IN EVIDENCE

Mr. Scull: If your Honor pleases, I first offer in evidence a bunch of patents in suit. The names and numbers are:

McManus No. 1,339,066, of which claims 3 and 8 are involved.

[fol. 75] The Warth patent No. 1,899,782, of which claims 7 and 9 are in issue.

Warth patent No. 1,899,783, of which claim 4 is in issue.

Warth reissue patent No. 19,117, of which claims 1 and 3 are in issue, and

Warth patent No. 1,967,195, of which all three claims are in issue.

Warth patent No. 1,956,481, of which claims 6 and 16 are in issue.

(Marked Plaintiff's Exhibit 1 in evidence.)

Mr. Scull: I offer in evidence a letter dated April 2, 1934, and another one dated April 26, 1934, and one dated July 18, 1934, which are the notices of infringement, the receipt of

which is acknowledged by the defendant on or about the dates appearing on these letters.

(Marked Plaintiff's Exhibit 2 in evidence, three letters.)

Mr. Scull: I offer in evidence a stipulation which covers various matters agreed on between the plaintiff and the defendant, and the part of immediate interest would be the stipulation as to the various infringing constructions.

(Marked Plaintiff's Exhibit 3 in evidence.)

Mr. Scull: I offer in evidence a cap, one of the ones referred to in the stipulation as A.

(Marked Plaintiff's Exhibit 4 in evidence.)

Mr. Scull: I offer in evidence one of the caps marked B in the stipulation.

(Marked Plaintiff's Exhibit 5 in evidence.)

Mr. Scull: I offer in evidence a cap, one of those marked C in the stipulation.

(Marked Plaintiff's Exhibit 6 in evidence.)

Mr. Scull: I offer in evidence a cap which is one of those marked D in the stipulation.

(Marked Plaintiff's Exhibit 7 in evidence.)

[fol. 76] Mr. Scull: I offer in evidence a cap which is one of those marked F in the stipulation.

(Marked Plaintiff's Exhibit 8 in evidence.)

Mr. Scull: I offer in evidence a strip of foil which was part of that marked G in the stipulation.

(Marked Plaintiff's Exhibit 9 in evidence.)

Mr. Scull: I offer in evidence a strip of foil which was marked H in the stipulation.

(Marked Plaintiff's Exhibit 10 in evidence.)

Mr. Scull: I offer in evidence a strip of foil which was marked I in the stipulation.

(Marked Plaintiff's Exhibit 11 in evidence.)

Mr. Scull: I offer in evidence a paper strip which was marked J in the stipulation.

(Marked Plaintiff's Exhibit 12 in evidence.)

Mr. Scull: I also offer in evidence at this time, your Honor, in a combined form some of the interrogatories directed to the defendant and the answers thereto.

(Marked Plaintiff's Exhibit 13 in evidence.)

Mr. Scull: I offer in evidence a copy of the Johnson patent No. 1,852,578, referred to in the interrogatories and in the stipulation.

(Marked Plaintiff's Exhibit 14 in evidence.)

Mr. Scull: I offer in evidence a copy of the Cohn patent No. 1,921,808 also referred to in the stipulation and in the interrogatories.

(Marked Plaintiff's Exhibit 15 in evidence.)

(Mr. Warland made an opening statement on behalf of the defendant.)

[fol. 77] JOHN W. GILBERT, called as a witness on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Mr. Gilbert, where do you reside?
A. 11 Albert Street, South River, New Jersey.
Q. 2. What is your occupation?
A. Chemist.
Q. 3. And you are connected with the duPont Company, are you?
A. Yes.
Q. 4. At their Parlin plant?
A. Yes, the Parlin plant, at Parlin, New Jersey.
Q. 5. How long have you been so connected?
A. Since 1923.
Q. 6. Are you familiar with the composition of cement sold by the duPont Company and known as No. 4620?
A. Yes.
Q. 7. And does that cement contain both nitrocellulose and resin?
A. It does.

Q. 8. And the resin is of what character?

A. It is a synthetic resin of the alkyd or polyhydric alcohol-polybasic acid type.

Q. 9. And all cement I understand that has been sold under this No. 4620 is of this character?

A. Yes.

Mr. Scull: That is all.

Cross-examination.

By Mr. Warland:

X Q. 10. Are you employed by the duPont Company?

A. I am.

X Q. 11. Did you examine the caps made by the plaintiff and sold by the plaintiff the Crown Cork & Seal Company?

A. I have.

[fol. 78] X Q. 12. And what do they use, do they use the No. 4620 cement also?

A. Yes, sir.

X Q. 13. The same adhesive that the defendant uses?

A. I believe so.

X Q. 14. Have you examined the defendant's cap?

A. No.

Mr. Scull: If your Honor pleases, I put this man on merely to prove the make-up of the No. 4620 cement. I do not think that opens up the field to a large cross examination.

The Court: He is making him his own witness, of course. If you go beyond the composition of the cement, you make him your own witness.

X Q. 15. In your duties with the duPont Company do you have anything to do with the sale or advertising of this article?

A. I do not.

X Q. 16. Do you know to whom it is sold principally?

A. I cannot answer that, I am merely the chemist.

X Q. 17. You have no knowledge of the sales?

A. No, sir.

X Q. 18. Do you happen to know when the Crown Cork & Seal Company first bought this No. 4620 cement from the duPont Company?

A. No, sir, I would have no way of knowing.

X Q. 19. You know that they buy it now?
A. Yes.
X Q. 20. And in substantially large quantities?
A. Yes, that is so.
X Q. 21. Do you know what they use it for?
A. For cementing the center spots to the cork.

Mr. Warland: That is all.

[fol. 79] ANDREW WEISENBURG, called as a witness on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Mr. Weisenburg?
A. I reside in Philadelphia, Pennsylvania.
Q. 2. And your occupation?
A. Consulting engineer.
Q. 3. What is your education, and qualifications which have any bearing on the subject matter of the patents here in suit, to wit, crown corks, and particularly spot crowns; just tell the Court, will you, briefly?
A. I graduated from the University of Tennessee in 1909, taking my engineering degree, and practiced as a mining engineer until August 1, 1916.
Q. 4. Where did you take your engineering degree?
A. I took this engineering degree at Tennessee, and also spent three years at Pennsylvania State College and the University of Pennsylvania, specializing in chemistry and engineering. I then practiced as a mining engineer till 1916, August 1st, when I bought control of the Standard Crown Company, manufacturers of crowns in Philadelphia. This company was a successor to the American Cork & Seal Company, also a manufacturer of crown products. I operated the Standard Crown Company until March, 1929, when the assets of this company were sold to the Bond Manufacturing Company, a manufacturer of crowns and cork products in Wilmington, Delaware. I remained with the Bond Company until June, 1930, when I entered the employ of [fol. 80] the Crown Cork & Seal Company. I remained with the Crown Cork & Seal Company of Baltimore until about August, 1934, when my services were discontinued.

Q. 5. Now, since your contact with the crown cork industry in 1916, what has been your particular relation to it, by that, what has been your particular interest and connection?

A. My earliest contact in the crown industry was in 1916, when I was negotiating the purchase of the Standard Crown Company. I served as president of this company, but due to my engineering and chemical training my prime interest in the company was in the development of better machines for manufacturing crowns and the development of new types of closures. When I entered the employ of the Bond Company I was engaged in the designing of a machine for manufacturing closures. My entire time at the Crown Cork & Seal Company was in research and development, and for that purpose, a few weeks after I entered their employ, a special laboratory was built for me and I was placed in charge; in other words, since 1916, I have engaged exclusively in the manufacture of crowns, its development and its research, and have done nothing else.

Q. 6. Now, my understanding is that the crowns we are going to talk about here are primarily the metal cap or shell, rather, with a cork disc in it, sometimes natural and sometimes a composition cork; just explain briefly what is the purpose of the cushion or disc in that metal shell.

A. The function of the disc is to have a resilient liner so that we have a compression member which will enable us [fol. 81] by the pressure formed upon the metal shell to get a positive seal, and retain a high pressure in the bottle.

Q. 7. And for that purpose is it necessary that the cork shall be directly in contact with the bottle?

A. It is absolutely necessary that the cork liner be in contact with the sealing lip of the bottle. It is well-known to every engineer that it is impossible to get a tight seal with two smooth members unless you grind them, or in some manner make them absolutely fit. Where you do not do this it is necessary to have a resilient member to take up the irregularities of the sealing lip.

Q. 8. Merely to give us a basis on which to work, I have had you prepare a chart here of what I understand to be a typical machine and procedure for making the ordinary crowns, in which a series of crowns is shown as being moved along step by step beneath a series of instrumentalities, an adhesive being first dropped into the shell, and then the shell

being heated to heat the adhesive, and then finally a plunger carries a cork disc or cushion down into that shell in which the adhesive has been warmed, and then the disc is held under pressure by certain plungers in a dial until it is cooled. That, I understand, is the typical method of making the ordinary crown caps?

A. More or less, yes.

Mr. Scull: I offer this chart in evidence.

(Marked Plaintiff's Exhibit 16 in evidence.)

Q. 9. Now, it is my understanding that all of the patents here in suit relate to these spot crowns that we have been [fol. 82] talking about where there is a disc of metal foil or paper cemented to the center of the cork disc, that is correct, is it?

A. Yes, sir.

Mr. Scull: I now offer this other chart in evidence.

(Marked Plaintiff's Exhibit 17 in evidence.)

Q. 10. I show you this chart which is marked Exhibit 17 and I ask you to explain the way in which these center spot crowns work, so far as the capping or contacting with the bottle is concerned, using the figure in the lower lefthand corner for that purpose.

A. In the ordinary standard run the punching of the cork disc or liner, as I stated before, is to have a resilient member to take up the inequalities of this sealing metal, in the bottle; as this metal cap is crimped around the sealing lip of the bottle. Where we use an uncovered resilient liner, whether it be composition or natural cork the contents of this bottle are in contact with this liner. Where we use a center spot, the center spot must be accurately centered so that practically one-half of the metal foil or prepared paper will cover about half of the top of the sealing lip. Should this metal foil cover the entire sealing lip then we have a condition where we will not get a perfect seal. Therefore, to overcome that it must be accurately centered so that the prepared paper or foil will not go over one-half of the area of the sealing lip.

Q. 11. What is the purpose of bringing the edge of the foil or paper up so that it is contacted with the bottle?

[fol. 83] A. So that we have a compression of the shell which will also act to compress the metal foil and hold it in

position. In placing such a cap on a bottle, 600 pounds of pressure is used. The result of this is that the resilient member forms an arc shape, and there is quite a stretch here and it is necessary that if this spot only came to the inner area of the lip, there will be a tendency to pull away and the contents of the bottle would get into contact with the cork. By bringing it over the top of the sealing lip we eliminate that possibility.

Q. 12. Will you state what are some of the practical conditions that are met in bottling which these spot crowns have particularly been designed to meet. Give us some idea, for instance, of the special conditions that arise in connection with certain beverages and certain bottle lips.

A. Where you bottle mineral waters for example you have certain conditions or rather the chemical contents of the water will be affected by the cork disc. Where you bottle ginger ales or beers there is a tendency of the cork disc to give what is known as a corking taste or odor to the contents of the bottle. There is also a tendency, when a composition cork is used, to do the same thing plus a tendency of particles to fall into the beverage. There is also the blackening of the cork and the blackening of the binder, all of which has a bad appearance and affects the sale of the beverage.

Q. 13. Now, in modern bottling conditions are bottles sometimes kept for a long time before they are used?

A. In the manufacture of bottled goods it is customary today to manufacture in more or less central plants and they are merchandised in every part and corner of the [fol. 84] United States and the world. For example, Anheuser-Busch can be bought in practically every village and city of the United States and in my experience at practically every large port City in the world.

Ginger ales, such as Canada Dry and Cliquot Club are merchandised in a similar manner. The modern method of merchandising is responsible for this requirement.

Q. 14. That is to say, if I understand you, that the cap must be designed so that it will hold and keep the beverage for these long periods?

A. That is obvious. When a customer buys a bottle of beverage he is not interested at what time or when the bottle was bottled but rather the condition in which he finds it, and, therefore, these crowns must be adapted to hold these pressures or the beverage gets a bad name.

Q. 15. It is a fact though that the plain unspotted crowns are still used in large quantities?

A. Yes.

Q. 16. Why is that?

A. For a certain type of beverage where the consumption is in the locality where the beverage is bottled it is customary to use composition cork discs. One reason is its lower cost, which is practically the prime reason. Wherever bottling is done for a long-time consumption or for particularly high grade beverages, where the time factor is indefinite, two or three months or a year after bottling, before consumption, the bottler will not use composition cork.

Certain nationally known beverages, such as Coca-Cola, will use composition cork, but Coca-Cola is bottled usually in the vicinity where it is consumed. For example, there is [fol. 85] one in New York, a bottling plant in New York, one in Trenton, New Jersey, and one in Philadelphia, and practically every city and town has its own Coca-Cola bottling plant, but where there is any danger of consumption being a long time after bottling, the average bottler will not use composition cork discs.

Q. 17. Now, what is the trade custom so far as the sale of these caps to bottlers is concerned—what about any liability so far as the failure of the cap is concerned?

A. I was in the business and I paid many a claim. It seems that crowns are sold more or less under an implied guarantee and it is very usual, in the crown business, to receive claims from bottlers, not only for the cost of the crowns but for the cost of the bottled goods. The cost of the crowns running anywhere from six or eight or more per cent is slight when compared to the average cost of the goods, and the ingredients and the bottle and so forth, that is much greater than the cost of the crown.

Q. 18. What is the fact as to the test of any new disclosure, particularly these crowns in which we are interested here, so far as the time and varying conditions are concerned? Is that a matter which can be done quickly or does it take considerable time?

A. It takes considerable time, sometimes years before any new type of crown will be adapted by the large bottling concerns or breweries. When one realizes that these bottles are filled and crowned at as high a rate as 160 per minute, and passed out and sold, the bottler—the larger bottlers cannot afford to take a chance and before putting any type

that is new on these bottles he will usually make a long-time test on the new type.

[fol. 86] Q. 19. And how is that test made usually?

A. The usual test as conducted by the bottler is to bottle his beverage and put it away for awhile. If it seems to stand up at home he will send it out to a few favored customers that he knows very well who won't complain too much if it should go bad; in other words, he tries to protect himself, and usually will not adopt a new crown until a year, or anyway six months to a year, or longer.

Q. 20. I wish you would tell the Court briefly some of the types of crowns that have been used. You have already told us of the standard non-spot crown which is still in use, and you told us about the spot crown under the figure entitled, "McManus Center Spot Crown." What other kinds of crowns of this general type have been used or tried to be used?

A. Besides the natural cork crown and the composition cork crown fully exposed to the contents of the bottle we have the type known as an over-all crown. In this type of crown either foil or prepared paper covers the entire cork disc. The objection to this type of crown is that it is impossible to get as good sealing value as it is with the center spot. This type of crown is comparatively easy to manufacture because the surfacing material can be placed on the cork before the assembling operation. It is usual practice to take a sheet of composition cork and fasten thereto the desired facing material. The discs are then punched from this laminated material, stacked in tubes, placed in the assembling machine, and placed in the shell. In a few small instances abroad I know where they make this type of crown by tucking it under the disc itself in an [fol. 87] assembling machine. This naturally is very slow and a costly operation. I have here samples of the usual laminated material. It shows a cork backing, or cork coated with different types of paper and metal foil.

Q. 21. My understanding is as to these materials you have in your hand, in reality what you do is punch out a disc which takes the place of the cork or composition cork of the disc of the standard non-spot crown?

A. Yes.

Q. 22. And it is simply handled as such in the assembling machine?

A. The disc from this laminated material can be fed and used in an assembling machine exactly the same as if natural or composition cork disc is used, the only requisite is that they must be stacked in tubes so the surface of the material is all one way. There is no difficulty in assembling this crown as a center spot, you do not have to center it or face it in operation, so it is a very simple operation.

Q. 23. Can that sort of crown, however, be used for pressure beverages?

A. It can be used, but its value for holding high pressure beverages is not as good in any shape, manner or form, as the center spot.

Q. 24. To what extent is it used?

A. On certain waters, like Apollinaris, and maybe one or two others, but I do not know of any other beverage using it. I do not know of any bottler in the United States using that type of crown, to my knowledge.

Q. 25. Now, on this chart there is one marked, "White Rock Crown." I wish you would tell us about that.

[fol. 88] Mr. Scull: First I offer the batch of laminated material referred to by the witness as Exhibit 18.

(Marked Plaintiff's Exhibit 18 in evidence.)

A. In the White Rock or Stewart crown we have a crown, which, in my opinion, was the first to successfully use a center spot crown. In this type of crown the center spot is mechanically held in the crown. This is done by scoring the cork shell and placing in there a cupped or flanged piece of metal foil. There is no adhesive used in this type of crown. I manufactured this crown for a great number of years, and controlled the patent, and I eventually sold the machinery and the patent and my interest to the White Rock Company. In this type of crown, as one can readily see, it is necessary to cut or score into the disc. The metal foil is then placed into that cut or score. This means that the cutter must cut this circular cut or score during the assembling operation. Such a cutter has to run about 5,000 revolutions per minute. The cutter heats up and it gets dull. You have particles in natural cork discs which are hard and resinous and they tend to dull and heat up the cutter. This results in the machine running very slowly. The best I ever got out of these machines was 90 per minute.

Q. 26. Can you use composition cork with this?

A. Composition cork is made up of particles of natural cork. The binder used for this type of composition cork is either gelatin, glue, casein, albumen or synthetic resin. One can readily see that the cork is not placed therein in [fol. 89] any particular manner. It is a conglomerate and it is impossible for the cutter to make a uniform cut so we can enter this flanged metal therein easily. I tried for years to manufacture this type of crown with composition cork, but could not do it. The only approach at all to success was by scoring and cutting the disc in the composition cork before I entered them in the shell, but I did not find this commercial, and abandoned the effort.

Q. 27. What is the relative expense, or relative difficulty, of using natural cork as compared with composition cork?

A. Composition cork will run around three cents per gross. High grade natural cork today will run around twelve, eleven, ten cents per gross.

Q. 28. And does White Rock use that high grade cork?

A. White Rock purchase from the Crown Cork & Seal Company the highest grade of natural cork obtainable. Natural cork, by the way, is a natural growth, and you can only get a high grade by selection, by picking out the best of the cork.

Q. 29. What is the effect, so far as this particular Stewart or White Rock crown is concerned as to its use, to what extent is it used?

A. When I manufactured this crown I received from forty-two to forty-eight cents a gross. I was only able to sell this crown to the White Rock Company and a few others who could afford to pay the price, therefore, its use is quite limited.

Q. 30. What would you give as the price today of the spot caps which are involved here?

A. Twenty-two to twenty-four cents a gross.

Q. 31. That is to say, about one-half of what you had to sell White Rock at?

A. Yes.

[fol. 90] Q. 32. What about the possibility of using paper instead of metal in this Stewart or White Rock crown top?

A. For certain types of beverages it is impossible to use a metal foil, and we have to use a specially prepared type of paper, that is, on pale ginger ales it is impossible to take

a piece of paper, cup it and insert it in a disc in the manner of this particular patent.

Q. 33. That is the Stewart patent?

A. The Stewart patent.

Q. 34. In other words, this Stewart or White Rock crown is limited to metal spots?

A. It is limited to metal spots and natural cork.

Q. 35. Now, then, I call your attention to another figure entitled American Cork & Seal Company, Bartlett and Keller patents, and ask you to explain what that is?

A. As I stated before, my company was the successor to the American Cork & Seal Company. When I purchased the Standard Crown Company I found in their possession the machines for manufacturing this type of crown.

Q. 36. That is the type of crown shown in the middle figure?

A. Shown in the middle figure here. This type of crown uses a ring instead of a disc and leaves no resilient member in the center. In the center of the crown they used metal foil which was cupped and flanged so that the center could be adhered to the crown and the flange be used to hold the rubber ring in place. I have samples here of such a crown. This was the type of metal foil, cupped and flanged, and the bottom of this foil was adhered to the metal shell. This flange was used to hold the rubber ring in place.

Q. 37. As I understand this construction this rubber ring [fol. 91] was the equivalent of the cork, or took the place of the cork?

A. Yes, sir.

Q. 38. And it was not itself adhered to the metal shell?

A. No, sir.

Q. 39. And that this so-called center spot was in reality used as a means to hold that rubber ring to the shell?

A. Yes, sir.

Q. 40. And at the same time it did protect the rubber ring from the contents of the bottle?

A. Yes, sir.

Q. 41. How was this cup—I will call it center spot, it really isn't—held to the shell, how was that done?

A. It was done by solder. In the manufacture of this type of crown the shell came into the assembling machine and was given a stop and go motion. At the first stop station a rubber ring was placed in the shell. At the next stop station a drop of acid was placed inside of this ring. At

the next station, solder was placed on top of the acid. It is then necessary at the next station to heat this acid and solder and at another station smear over the center. Then this cap metal foil was placed therein and then more heating, so as to fuse the solder and then a few plunges to enable the solder to cool under pressure. This manufacture was a mess. I was unable to use the machines. I tried for practically a year and I had several mechanics working on it—but I was unable to manufacture them commercially, and they would cost me about one dollar a gross to make them and I never placed them on the market and I could not see any market for that.

Q. 42. Now, you have already referred to this McManus center spot crown. What would you say as to the quantity [fol. 92] of those center spot crowns that are made and sold today, particularly in proportion to the total output?

A. From the figures that I have available I would say that the total production of crowns today—that 30 per cent are center spot type. The Crown Cork & Seal Company will manufacture about nine million gross of this type crown in 1935. They are manufacturing at the rate of over 500 per minute and I mean by that the facing disc is placed on the cork and the crown at the rate of over 500 per minute, or eight or nine per second.

Q. 43. When you say 500 per minute, you mean that a given section does that—each unit produces 500 a minute?

A. Each unit produces more than 500 per minute.

Q. 44. Now, in the type of this McManus crown that you have been telling us about, how is the center spot fastened to the disc, by what material?

A. In the McManus crown?

Q. 45. Or in the crown that you have been telling us about.

A. By a thermoplastic.

Q. 46. What do you mean by that?

A. A material which becomes tacky under heat and it is hard under cold.

Q. 47. And what are the two particular types of thermoplastics which have been used and are being used today?

A. Gutta percha and du Pont No. 4620.

Q. 48. Does anybody today make and sell this form of crown which is depicted here in the figure "American Cork & Seal" crown?

A. Not to my knowledge.

Q 49. Aside from the White Rock type is there any form of spot crown which is on the market today and used to any considerable extent other than this paper or foil cen-
[fol. 93] ter spot facing to the cork disc by thermoplastic adhesive?

A. By any other but a thermoplastic?

Q. 50. Yes.

A. Not to my knowledge.

Q. 51. Now, you have read the patents in suit?

A. Yes, sir.

Q. 52. I wish you would briefly touch on the McManus patent and tell us what it describes.

A. This McManus patent describes a center spot cap of the adhesive stick type, in which the center spot F of the drawing Fig. 2 is united to the cork disc E by an adhesive. McManus explains that so far as the shell and the cushion disc portions are concerned these are to be the same as were used in the art and well known at the time of the application, namely 1915. He states that the cushion disc itself is made of granular cork, the granulations being connected by an insoluble binder. He states that the disc is attached to the shell by a fusible binding medium. The binding medium then in commercial use was a natural gum or resin, either in alcoholic solution or coated on a paper. This alcoholic solution, after being spread in the shell, or the coated paper disc, were then fused to heat the gum, and after the resilient disc therein was placed under pressure so it could be set while cooling.

McManus also pointed out that the facing disc was to be of smaller diameter than the compression disc so as to come in contact with the sealing lip of the bottle.

McManus pointed out on page 3 at line 39, "The disc F is so positioned as to be spaced within said line of greatest compression and yet it may be and preferably is in contact with the inner edge of the bottle lip."

He shows this in all his drawings as illustrated on the
[fol. 94] sketch, as well over the exterior opening of the bottle mouth and that is in fact the way practically all crowns or center spot crowns are made today. This insures the fact that the edge of the metal disc will participate in the compression of the metal shell. To do this, he points out it is necessary to have the center spot exactly positioned so that it will permit the cushion disc to give the proper seal.

Q. 53. What about the character of the adhesive that he proposes for the paper spot?

A. The adhesive for holding the spot to the disc?

Q. 54. Yes.

A. He says, on page 2, line 73, "This disc F may be made of hard parchment paper or of any other paper so treated as to make it non-absorbent. This flexible disc F is secured in place upon the compressible disc E by means of a binding medium, preferably such as that which is used as a bond for the granules of the composition disc or for uniting said disc to the metallic cap. By using this bond, the disc E and disc F may be assembled in relation to the cap and to each other by one and the same operation if desired."

Now, in this quotation McManus is saying that he can use a gelatine coating, casein or albumen as a binder or the binder as then used for making the composite cork or a heat-fusible medium for attaching the spot or facing disc to the cushion disc. It is the heat-fusible unit adhesive that has gone into universal use for fastening the spots to the cork disc.

Q. 55. It is this heat-fusible cement I understand which was then commonly in use, to fasten a disc into the shell, is that right?

A. Yes, sir.

Q. 56. And when he says that the two operations can be [fol. 95] done at the same time what do you understand he meant should be the character of the cement under the spot?

A. It would be obvious to me that where he cared to cement the cork disc to the shell and the center disc to the cork disc he would want to use the same type of adhesive, in other words a heat-fusible adhesive for both purposes.

Q. 57. I notice you use the expression "heat-fusible." Suppose the expression were simply "fusible binding means" what would that mean?

A. That would mean the same thing.

Q. 58. In other words the word "fusible" itself connotes heat?

A. Yes.

Q. 59. Have you compared spot crowns which are stipulated here as of defendant's manufacture and which are exhibits 4, 5, 6, 7 and 8, with this McManus patent in suit?

A. Yes.

Q. 60. What can you say as to the relation between those caps and the disclosures of the McManus patent?

A. The caps, I have them here as A. B. C, D and F, and they are exhibits numbered 4, 5, 6, 7 and 8——

Q. 61. Yes.

A. The McManus patent describes a spot of suitable material, whether paper or metal foil. Each one of those caps has such a center spot.

McManus describes a heat-fusible adhesive to hold the spot to the cork disc. Cap D, which is Exhibit 7, and F which is Exhibit 8, have gutta percha as an adhesive and this is heat-fusible. Cap B which is Exhibit 5 uses the duPont No. 4620 and this is also thermoplastic or heat-fusible.

Q. 62. And the same thing is true of Exhibit 4, which is the A cap?

A. Yes, that has the No. 4620 duPont.

[fol. 96] Q. 63. And similarly it is true that Exhibit 6 uses gutta percha, and that is a thermoplastic?

A. That's right.

Q. 64. Do any of these use a fusible medium to attach the disc to the shell?

A. Caps A and F which are Exhibits 4 and 8 have such a bonding means which I have ascertained by test.

Q. 65. Now, will you turn to the Warth reissue patent No. 19,117 and explain what is the disclosure of that patent as to the method described in it.

A. In this patent Warth describes a method by which the center spots of the McManus patent can be applied to the crowns in a highly efficient manner.

Warth in his specification refers to various ways in which the center spot crowns have been produced. First he refers to what I have called the White Rock crown and which Warth says is objectionable for many reasons.

Secondly he refers to the pasting of the center spot to the cork disc by casein, paste or glue, and he points out that such adhesives are liable to be attacked by the contents of the bottle and there are many difficulties, he says, in applying such paste or glue. I have seen many attempts to use such paste or glue and I know the many difficulties that are run into.

Any solution or adhesive which requires liquid or moisture at the time of deposit presents many difficulties. It is impossible to apply it—the liquid or paste and be sure that the liquid covers the entire disc. Compared to

our present rate of manufacture, of over 500 discs per minute it is impossible to use any liquid past- or glue. First, because of the difficulty of positioning the center spot accurately in the center of the cushion disc. These center spots [fol. 97] must be accurately positioned. If they are not, they will lose their function, the crown will not function.

All of us have had experience with a postage stamp which has been moistened excessively. We put it on the envelope and it skids all over, smearing the envelope. The same thing would happen when liquid paste or glue were used in fastening the center spot to the disc. Secondly, with the stop and go motion of the machines it would be impossible to run this machine at any decent speed where a liquid paste or glue were used. Another trouble would be, it would be necessary to hold the crown until the glue were set or otherwise in the movement of the crown the center spot would not longer be centered, slowing up the operation. A liquid will exude a smear all over the cork disc.

Q. 66. My understanding is you have seen attempts made and probably made them yourself, to use this soluble type?

A. Yes.

Q. 67. And you are not saying that if one wanted to, in a laboratory, that you could cut out and paste on one of these discs by hand and have it right?

A. That could be done, I have done many of them perfectly.

Q. 68. But the trick here, as I understand your testimony is to do it at such a speed as to make it commercially possible?

A. Yes. Then your biggest trouble would be the wetting of the plunges. They become gummy and you have to stop the machine. In fact, it is impossible to do it commercially.

Q. 69. Does anybody so far as you know use that method today?

A. No.,

[fol. 98] Met pursuant to recess at 2:00 p. m.; present as before.

ANDREW WEISENBURG, resumed:

Direct examination.

By Mr. Scull (Continued):

Mr. Scull: I offer in evidence a box of Crown caps.

(Marked Plaintiff's Exhibit 19 in evidence.)

Mr. Scull: Similarly I offer in evidence a box of so-called White Rock caps.

(Marked Plaintiff's Exhibit 20 in evidence.)

Q. 70. Now, will you continue your description of the disclosure in the Warth reissue patent in suit?

A. Now, returning to the Warth specification of his patent, on page 1, line 35, he speaks of another method of securing the spots in which the underlying tissue of gutta percha or coated paper is used. By this he means a method in which a separate strip of gutta percha was fed from one reel, and the facing material, such as the metal foil, was fed from another.

A disc of gutta percha and a disc of foil are punched and applied to the compression disc with the gutta percha facing the disc and sealing disc, and then pressure applied.

As Warth points out this involved the feeding and handling of a strip of thin gutta percha which was liable to break and had the added uncertainty—there was no security that the gutta percha was under the facing disc.

To meet these objections as I understand this patent, [fol. 99] Warth has proposed a method which involves the following steps: A thermoplastically coated strip is positioned beneath a punch and over a die and over a crown with an adhesive coating on the underside; two, a punching operation is employed to position the spot centrally on the cork disc; three, at the time of assembly or instantly with the assembly the combined spot and cork disc are subjected to heat and pressure. Each of these steps are described in the specification. On page 1, at lines 91 to 107, he describes the advantages of using this combination strip.

Q. 71. By combined strip you mean the material of the strip with the thermoplastic coating on it?

A. On the facing material, yes. He says for this, many materials may be used for this facing material. He also says many materials may be used as an adhesive. He says that the coating is applied to the facing strip in a fluid form and it is dried and that the center spot can then be cut from this combined strip, that is the facing material with the thermoplastic coating on one side, with the sureness that the adhesive covers the entire area of the facing strip.

This can, of course, be done and is done in a separate operation where particular care is taken as to the thickness of the adhesive coating and particular care can be taken that the adhesive covers the entire area of the facing strip. In other words, we are sure of perfect union before the facing strip is set into the machine.

The second step, using a punching operation over the crown cap, to apply the disc to the cap is described on page 2, line 67. It says, "In this connection it is noted that the [fol. 100] spots may be conveniently assembled by feeding the strip of material over successive crown corks and cutting out the disc which is deposited on the cork, such assembling machinery being well known in the art."

When a center spot is cut out, the disc being cut from this combined strip directly over the crown cork, the center spot is pressed down on the cushion disc with the adhesive next to the cork. Strip feeding and strip punching machinery are well known and old in the crown manufacturing art.

The third step, the use of heat and pressure instantly with assembly or at the time of assembly. The patent makes this perfectly clear. For example, in the specification at page 2, lines 109 to 111, "At the time of assembly the coating material is softened to render it adhesive and the assembly unit is subject to pressure." At page 3, lines 45 to 50, "The preferred method of applying the material to the cap is to utilize, at the time of assembly both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap."

Page 3, lines 91 to 96, "At the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid of likelihood of displacement of the disc thereafter."

Page 3, lines 108 to 111, "Moreover, when the metal foil is assembled with the sealing disc it is already prepared for

being stuck in place, the sticking being accomplished by the simple application of heat and pressure."

[fol. 101] The three steps here described are vital and constitute a three-step combination method. For example, with the thermoplastically coated facing material arranged as described, under a punch, over a die and over a crown, whereby the punching operation may also position the spot, we still lack a complete method. There is required the further vital step described in the specification, namely, the use and application of heat and pressure instantly with assembly or, as Warth here describes it, at the time of assembly.

This last step of applying both heat and pressure instantly with assembling serves the useful purpose of positioning the center spot centrally in the cap and enables it to stay put until further operations can be performed. This must be done instantly. Where you are running a machine at 500 per minute there is no time to wait, and one must be sure that the spot is centrally positioned.

The use of heat and pressure instantly with deposit of the spot might be considered the keynote of the entire operation. However, the three steps are like, I might say, the three steps of a tripod. Without any one of these steps the method will not function.

He also mentions further steps in his specification, page 2, lines 111 to 114, "In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled," this step of applying heat and pressure, for example, by a plunger, so that we have described in the patent the steps of applying heat both at the time of assembly and after [fol. 102] assembly. The final step of subjecting the heat to pressure while cooling is described on page 3, lines 98 to 103, "The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material."

If we look at the drawing we will see punch 20 with the combined strip underneath this punch 20 and over the die 19. Consequently, we have the relationship which satisfies the first two steps of the method, positioning the thermoplastically coated strip over a cap and beneath the punch, and, second, utilizing the punching operation to apply the

spot to the composition disc. The vital step of using heat and pressure instantly on assembly, or, as he says, at the time of assembly, is illustrated by the application of heat from a gas burner. It is directed against the punch 20, which seems to transmit the heat to the assembled unit so we have illustrated here a mechanical method or means for getting heat and pressure applied instantly on assembly. There is no illustration shown of the cooling under pressure, but this is well-known.

Q. 72. That is, you mean the mechanism by which the discs in the shells are held while they are being cooled, that was old, in the old assembly art?

A. That is old, and this method of using a rotary pressure is well known in the art and is part of practically every crown cork assembling machine.

The Court: It says in the patent it may be perfected in any suitable manner.

Mr. Scull: Yes.

[fol. 103] A. (Continuing.) This combination of steps, as far as I know of, is the only method used today for manufacturing center spot crowns. Without this method I doubt if we would have an economical method of making center spot caps.

Q. 73. While we are on that subject I call your attention to a chart which you made for me and which I offer in evidence as Exhibit 21.

(Marked Plaintiff's Exhibit 21 in evidence.)

Q. (Continuing.) —and I ask you whether that illustrates the Warth method that you have just been describing as being found in this reissue patent in suit?

A. It does, sir.

Q. 74. My understanding is that the upper figure here shows the situation as it is when the combined strip is in position ready to have a punching cut from it by the punching die and be carried down on top of the cushion of this assembled unit, is that correct?

A. Yes, sir.

Q. 75. And then below there is a succession of figures showing how the assembled crowns move along from left to right, first receiving the cushion disc—first receiving the spot and being pressed down by this warmed punch and then the second one shows the application of heat again

as the fourth step, and finally the cooling under pressure?

A. Yes, sir, that is the method as I see it.

Q. 76. Will you turn to the Warth patent 1,967,195 in suit and describe what that shows?

A. This patent describes a variation of the reissue patent which I have just discussed. It describes the same combination of steps, but it describes a different method of apply-
[fol. 104] ing the heat, so that in combination with pressure it is used instantly at the time the spot is coated and deposited.

The reissue drawing illustrates heat as being applied to the plunger and then through the latter the heat is transmitted to the liner of the cap. This latter patent suggests the direct application of heat to the cap, preferably before the spot is deposited, so that there is stored in the cap and particularly in the liner——

Q. 77. By the liner you mean——

A. Cork liner.

Q. 78. The cushion liner?

A. The cushion liner, to be available at the time the spot is deposited, sufficient heat to render the adhesive tacky the instant it engages the liner. This is only another way of doing the same thing that Warth teaches in the reissue patent, that is, utilizing the heat and pressure instantly at the time of assembly. It accomplishes the same final result, namely, applying heat combined with pressure at the instant the spot is deposited.

Mr. Scull: I now offer in evidence this chart.

(Marked Plaintiff's Exhibit 22 in evidence.)

Q. 79. I show you this chart marked Plaintiff's Exhibit 22 and I ask you whether that illustrates the set you have been telling us about?

A. Yes, that is correct.

Q. 80. And what you have shown here at the second figure from the left on a straight line across the sheet is a gas heater which is above and supplies heat to the liner or the cork disc just before it reaches the point where the spot
[fol. 105] is applied to it, that is correct, isn't it?

A. Yes, that is correct.

Q. 81. And from that time on the additional heat and cooling is the same as in the reissue?

A. The same thing.

Q. 82. And is that a practical thing, to apply gas heat in that fashion?

A. It is very practical, yes, sir.

Q. 83. Now, it has been stipulated that the defendant makes its caps or did make these caps on a machine like the Johnson patent No. 1,852,578 which is Exhibit 14 and that later they turned to a machine or method such as is shown in the Cohn patent No. 1,921,808 which is Exhibit 15 and I wish you would, therefore, describe the method of those two patents because in fact they are the stipulated methods used by the defendant. Take first the Johnson patent 1,852,578.

Mr. Scull: Preliminary, however, I shall offer this chart in evidence.

(Marked Plaintiff's Exhibit 23 in evidence.)

Q. 84. Now, I ask you whether you have prepared this chart to show this method according to the stipulation, as that method is shown in the Johnson and Cohn patents respectively.

A. I prepared that chart.

Q. 85. Now, will you please explain the Johnson and Cohn methods?

Mr. Warland: I don't want to make any objection, your Honor, but I do not believe that is a correct chart or statement of the Cohn method.

[fol. 106] The Court: Well, that is his version of it. It may not be correct, that will be a matter of proof.

A. In the Johnson patent we have a thermoplastically coated strip material or liner material placed underneath a punch and over a die and over a crown. The punch is used to cut the disc and position the same on the cork disc. The assembled crown, passing through the machine radiates heat, in this case, directly to the cork liner through an electric heater. The crown facing disc is punched and placed in the crown exactly as in the Warth patent. The heat and pressure, after placing the spot, is done exactly the same as in the Warth patent except that they use electric instead of gas heat. They have the cold and pressure plunger exactly the same as the Warth method. There is no essential difference between this and the second Warth patent except electric heat in place of gas heat.

Q. 86. And is that method you have just described found in the Johnson patent?

A. This is the method I found in the Johnson patent.

Q. 87. And do you find those same steps and the same arrangement in the Cohn patent?

A. I find the same steps and the same arrangement in the Cohn patent with one difference and that is this; in the Cohn patent the cork discs are not firmly adhered to the metal shell. He places his adhesive in the shell and places his cork disc on top of it and then heats this cork disc and the thermoplastic or whatever type of adhesive he uses, and then the following steps are identically the steps as shown here and identical to the Warth method.

[fol. 107] Q. 88. Does the fact that the cork disc is not adhered to the shell affect in any way, in the Cohn patent, the method by which the spot is adhered to the cork?

A. Absolutely not.

Q. 89. And the only point as I understand it is that by using a heat-fusible or fusible cement to hold the cork disc into the shell, he can, by a single operation at the point marked second step on Exhibit 23, cause not only the disc—the center spot to be adhered to the disc but also the disc to be adhered to the shell, is that correct?

A. There is no essential difference. Just exactly at what points the cork disc is adhered to the shell is difficult to know because you only see the final result when it comes out, but the essential step of getting the center spot and placing it under a punch and over a die, and putting it on a cork disc is essentially the same, in my opinion, as the Warth method.

Q. 90. At any event in this Cohn patent the method that he uses, fusible cement between the cork disc and the shell —I am talking about the patent now, is the same, isn't that true?

A. Yes.

Q. 91. So when he finally does apply the pressure it is when the center spot has been placed on the cork so that the one pressure not only forces the spot down to the cork, but forces the cork against the fusible cement which has been heated between the cork and the shell, in one operation, is that right?

A. That is substantially correct, but I know that he uses a heat coagulate, which I know is not thermoplastic, on some of his discs, but the function is the same. The final

adherence and the total pressure begins here—the final pressure is in the rotating pressure dial.

Q. 92. At any event, as I understand it, the only thing [fol. 108] in the Cohn patent that he describes is heat-fusible cement to be used to hold the cork into the shell?

A. Yes.

Q. 93. When he does use that kind of a heat-fusible cement he is using the same kind of a cement as is used to hold the spot to the cork?

A. Yes.

Q. 94. Now, Mr. Weisenburg, will you turn to the Warth patent 1,899,782 in suit and tell us what that shows?

A. This patent describes a combined strip of facing material with center spots and heat-fusible adhesive and is the type of material used in the re-issue patent.

Q. 95. In other words, my understanding is this simply describes the combined strip which you have been telling us about as being one of the essentials of the re-issue method?

A. Yes, sir. We turn to Fig. 1 of the patent. He shows how adhesive such as gutta percha can be placed on the facing material and other paper such as express or kraft paper or metal foil. We have a pair of rollers D, E, F. These rollers can be so adjusted that a particular thickness of the gutta percha desired can be placed on the one side of the facing material. This is on page 3, line 102, how this is done. By this method the operator can be assured that the facing material—he speaks here about the thickness of the surface coating and how to control it—by this method the operator can make his facing material prior to use in the center spotting machine and he is assured to have a facing material in which the adhesive coating covers the entire area and is of the proper thickness and in all respects a proper type.

Q. 96. Now so far as coating materials are concerned [fol. 109] you said it referred to both paper and foil and that the paper could be kraft paper. Is there anything else?

A. A paper to be suitable for surface facing would have to be hard and tough and would have to have a gloss and would have to have a suitable varnish coating or it would not function.

Q. 97. Now I call your attention to these strips which are stipulated as having been used by the defendant and

which are now marked as Exhibits 9, 10 and 11 and I ask whether those strips are such as are described in this Warth patent 1,899,782?

A. G and H (Exs. 9 and 10) are coated with gutta percha. I is coated I think with 4620.

Q. 98. That is a thermoplastic composition?

A. Yes.

Q. 99. I also show you Plaintiff's Exhibit 12 which is J of the stipulation and ask you whether this is also described in the Warth patent 1,899,782?

A. This is a varnished paper with a gutta percha backing.

Q. 100. That is described in the Warth patent No. 1,899,782?

A. It is so described, yes, sir.

Q. 101. Do you understand that this Exhibit 12 is a high gloss paper with varnish on one side?

A. I do.

Q. 102. Now will you turn to the Warth patent 1,956,481 in suit and tell us what is described in that patent?

A. This patent describes another form of the Warth combined strip on which he uses a thermoplastic adhesive instead of being gutta percha or the gum that he mentions in the re-issue patent, he describes one here with a cellulose derivative. In the specific form in which he describes this [fol. 110] patent he says that he uses a nitrocellulose derivative and synthetic resin. The patent mentions several suitable resins, known as either glyptal or rezyl resins and these resins and the cellulose are dissolved in a suitable solvent with a plasticizer so that they can be applied to the surface of the facing strip, dried and then used as center spot material. The solvent is necessary so that we can have a cellulose in solution so that it can be applied to the facing strip. This is evaporated, as everyone knows. By a plasticizer is meant a solution which does not evaporate rapidly but tends to remain in the composition and is used to keep the composition soft and flexible. By this combination Warth has described an adhesive which is thermoplastic and which at ordinary temperatures is non-tacky, has a non-tacky surface, but when heated sufficiently becomes tacky and will adhere the spot to the cork. This type of adhesive can be used for spot material exactly in the manner of the Warth description in his patent, his re-issue patent.

The facing material, after being coated in the proper apparatus, can be placed under the punch, over the die, cut and placed on the resilient liner, at the same time with heat and pressure, can be further heated and pressured and then can be cooled exactly in the manner of the Warth reissue patent.

Q. 103. What is the purpose, what is the reason for this combination of the nitrocellulose and the resin, if you know?

A. In my opinion there are many reasons for adding a resin in making an adhesive. I know in my work the first thought was to use cellulose nitrate or an acetate in solution alone. My experiments show that cellulose nitrate or acetate or any of the common forms of cellulose available [fol. 111] commercially are not thermoplastic. True enough, cellulose in solution is used as an adhesive but only as a wet adhesive. By that I mean in the laboratory it is commonplace to take labels and stick them on bottles by using cellulose in solution with a solvent, but cellulose in itself is not thermoplastic, it will not instantly under heat, become tacky. Therefore, if you were to use it in a spotting machine at this speed of over 500 a minute, the spots would not stay put, you could not soften them so they would adhere, and so we did not and cannot use the wet glue.

Now, the addition of these rezyl types or glyptal types which are thermoplastic, in which you can get any degree of thermoplasticity you want, gives its own characteristic to the cellulose with the result that with the proper proportion and the kind of resin, proper kind of cellulose, can form a thermoplastic adhesive which can be used and is used today in the Warth method. Of course, a plasticizer is also used. This is necessary to keep this composition soft and flexible so it will not dry out.

Q. 104. Why not use just the resin alone, why add nitrocellulose?

A. We have tried over many years to use all forms of resins. In the early days it was natural resins, such as Congo, Manila, kauri, in fact, every type of natural gum available. It is impossible to take a natural resin, put it in solution and dry it on a facing strip thin enough so that it will act as a proper adhesive. Where you use a natural gum your adhesive layer is so thick that your entire strength of the adhesive is simply the strength of the gum, and when these dry out they become brittle and

[fol. 112] your spots fall off. Now, with the newer, synthetic resins, such as these polyhydric, polybasic combinations known by the trade name of glyptals or rezyls, there you can get a somewhat thinner coat, yet your coat is too thick to be used in practice and has all the faults of the natural resins, but, peculiarly, the minute you put this in combination with cellulose, which is one of the finest film formers that I know of, you may form a very thin film. In fact, even though the resin and the plasticizers are in the combination, your total film thickness of the nitrocellulose, plus the resin, plus the plasticizer, is no greater than the cellulose alone, and it is well-known in the art the thinner the adhesive film the better the stick, the closer you can put two materials together, the better the adhesive qualities.

Q. 105. And as a spot-adhering material has this nitrocellulose resin combination any advantages over gutta percha, and, if so, just tell us what they are, briefly?

A. It has many advantages. In the first place, gutta percha is very susceptible to weather conditions, that is, humidity and weather. Where, in a large plant, like Crown Cork & Seal, it is necessary in the summer time to put the gutta percha in ice boxes, so it will not melt and flow, it is a decided disadvantage. Nitrocellulose, on the other hand, is not susceptible to humidity and not so susceptible to the weather or to heat—temperature. It is very easy to apply with the proper apparatus, although the apparatus is quite elaborate and expensive.

It has many properties that gutta percha does not have. For example, gutta percha under certain weather condi- [fol. 113] tions of high humidity will not adhere as well as a nitrocellulose resin adhesive. Gutta percha is what I would call of an oxidizing nature, that is, it is like any paint or any other material that is continually oxidizing. Everybody knows that if you paint a wall the oil is going to continue to oxidize or burn. That happens with gutta percha, with the result that gutta percha will deteriorate with age.

Nitrocellulose resin combinations, as far as my tests show, increase their adhesive powers as they age. In fact, they become stronger. Also, if you took nitrocellulose and tested its adhesive powers against a similar gutta percha stuck spot and placed them on a bottle, that is, crown a bottle, on testing these two adhesive powers, that of the gutta percha against the nitrocellulose resin combination, you will find that the pressure exerted in crowning has

decidedly increased the adhesive powers of the nitrocellulose resin combination; in fact, it increases over 100 per cent. its initial adhesive strength, whereas it increases the adhesiveness of the gutta percha very little. Again, when you pasteurize the bottle—if you take the adhesive strength of gutta percha against nitrocellulose resin, before placing on the bottle, then crown these caps on the bottle and pasteurize them and test their adhesive powers, you will find that the adhesive powers of the nitrocellulose resin has increased tremendously, whereas the gutta percha has decreased materially.

I have tried this under all conditions, with mineral waters, with beers, I have tried it at 142 degrees, which is pasteurizing temperature, and I have tried it at 190 de- [fol. 114] grees, and I have tried it under pressure at 240 degrees. Invariably you get the same result, that is, nitrocellulose is by far the better resin, it has better stability, better adhesiveness, I should say.

Q. 106. Will you turn to the Warth patent 1,899,783 in suit, and tell us what that discloses?

A. This patent we can call the Warth paper spot patent. Metal spots or discs for center spotting are not satisfactory for highly acidulated drinks, such as ginger ales.

Q. 107. That is because, I suppose, the acid attacks the metal?

A. The acid will attack the metal and form pin-holes in the metal. This patent describes a cap which can be used, as I have said, for acidulated liquids, such as pale ginger ale, and is the type of cap which has taken the place of the high grade natural cork which was formerly used on this type of beverage. The essential feature——

Q. 108. Why wasn't the composition cork used on this type of beverage?

A. Composition cork as I have said before, is not generally used for high grade beverages which will be stored or not consumed at any great time after bottling, due to the fact that there is quite a tendency to give the beverage a corky taste.

Q. 109. So that the alternative, in the absence of a paper spot, was to use this high grade natural cork with its increased expense, is that right?

A. Yes; in fact, until the advent of this type of crown, high grade natural cork was used exclusively for that purpose.

Q. 110. All right, go ahead.

A. The essentials of this cap, as he described it, are three, an adhesive layer of gutta-percha, also a high gloss paper, [fol. 115] for example, express paper, bleached kraft, third, a glazed surface coating of the paper—on the paper, of a compound which will not impart any taste or odor to the beverage and will resist the action of the beverage. On page 3, line 110, he describes the use of gutta percha and its particular advantages in this type of facing. Also, on page 4—rather, this continues to page 4, line 5, the types and kinds of papers and the reasons for using the same as described on page 3, line 28 to line 92. The glazed surface is described on page 4, lines 111 to 114. By the combination of these elements which Warth describes in his patent, he has overcome the difficulties found in the use of a paper spot.

You will remember the sketch I showed of a crown in position, and I stated that the pressure used was somewhat like 600 pounds to place the cap on the bottle. This means that the facing material must be strong enough to withstand the distortion caused by this 600 pounds pressure on the facing material.

One can readily see from the sketch that if the facing material is weak, it will tear and permit the contents of the bottle to come in contact with the cork liner.

Where you use a metal foil the metal foil is elastic and permits this, but where paper is used, it is essential that the paper be strong enough, as paper has very little elasticity. The paper being in contact with the contents of a bottle must be strong so it won't be weakened, tear, and yield and break. To meet these conditions Warth uses a hard, tough paper, such as kraft or express paper, which is strong enough to stand the pressure and which has a hard, [fol. 116] glossy finish, which aids the paper in making it impervious to the liquid, but as a primary means to prevent the contents of a bottle coming in contact, he uses a water-repellant varnish.

On page 4, line 110, he describes this varnish as being made up of resin, china wood oil and a drier and contains a plasticizer. Of course, the hard finish of the paper provides a secondary line of defense against the effects of the liquid if by any chance a small amount of liquid should get past the varnish.

Also by making it water-resistant, he permits the paper to retain its original strength and also keep the liquid out of contact with the paper, itself, just to avoid taint from the paper itself.

Then finally gutta percha is used as the adhesive, and he points out on page 3, line 125, that gutta percha is not affected by fruit acids, minerals or the like, which may be in the contents of the bottle. He also says on page 3, line 117, that gutta percha in itself is non-absorbent and non-pervious to gasses. These qualities are effective if for any reason the liquid should penetrate the spot. This type of cap with the varnish paper facing has been adopted by the entire trade.

It has superseded entirely the use of high grade natural cork and is the only type, I know of paper center spot cap being used today for this purpose. Practically every crown manufacturer is manufacturing this type.

Q. 111. Will you look at the stipulated caps which are Exhibits 6 and 7 and state whether or not those caps are made in accordance with what you have just been telling us is the disclosure of the Warth patent No. 1,899,783?

A. Both these caps have a varnished paper center spot [fol. 117] disc. Both of them appear to have a gutta percha adhesive in back of the facing.

Q. 112. And assuming that those caps were made with paper like the stipulated Exhibit 12, would you say that that is an express paper, kraft paper? What is it?

A. It looks like kraft with a gutta percha backing.

Q. 113. At any rate, it is a hard, high-finished paper?

A. It is a hard, high-finished paper, with varnished face, gutta percha backing.

Q. 114. And high gloss?

A. With a high gloss.

Q. 115. Now, to your knowledge are the inventions of these six patents here in suit used today by plaintiff in this suit?

A. All six patents are being used, to my knowledge, to the present day at the plant of the Crown Cork & Seal to the extent that the Crown Cork & Seal will make this year well over nine million gross center spot crowns. On the metal foil, where metal foil center spots are used, either gutta percha or the thermoplastic duPont 4620 is used. Where the varnished paper is used gutta percha is used exclusively as adhesive.

Q. 116. Have you any idea what proportion of the center spot crowns made by plaintiff are paper and what are metal, relatively?

A. I don't know the relativity exactly, but I would say there are more metal spots made than paper spots.

Q. 117. And my understanding is of your last answers that plaintiff is using the method as well as the material which is described in these patents?

A. In the manufacture of spot crowns at the Crown Cork & Seal they use a center spot with a thermoplastic adhesive for adhering the spot to the cork. This is the essential of [fol. 118] the McManus patent. And it uses the method of the reissue patent, that is, they have a thermoplastically coated strip, they position it in a punch and over a die and over a crown. They use the punch to place the spot on the cork. They use heat at the time of assembly. They use a further plunger to give it a further—heated plunger—to give it further adherence. They use the rotating dial with plungers to set or make the final stick; in other words, in my opinion, they are using all the essentials of the six patents in suit here.

Q. 118. How long, to your personal knowledge, has that been true?

A. When I entered the employ of the Crown in June, 1930, they were then using all these methods except the use of the nitrocellulose resin adhesive.

Q. 119. How long have you been using the nitrocellulose form of plastic?

A. Nitrocellulose went actively into use about June of 1934. This was due to the fact that it took us over a year to install ovens and apparatus for properly coating the facing material in the quantities which we used. I particularly remember that due to the fact that it was placed right behind my laboratory and adjacent to it.

Cross-examination.

By Mr. Warland:

X Q. 120. You referred to this McManus chart here. I understood your testimony to be McManus covered both metal foil and paper, is that right?

Mr. Scull: I object, your Honor. I did not ask him at any time what any patent covered. I simply asked him what its

[fol. 119] disclosure was. This man is not competent to tell you what the patent covers. He has not been interpreting the scope of any patent.

X Q. 121. Didn't you say or you understood the McManus patent to cover both metal foil and paper?

Mr. Scull: I object, your Honor, I did not ask him.

The Court: Well, he can state that. Objection overruled.

X Q. 122. Didn't you say that?

A. I think I did.

X Q. 123. That McManus covers both metal foil and paper?

A. I would have to check it back.

X Q. 124. Will you please take the McManus patent and check back and show me where it says anything about metal foil.

A. It does not particularly mention metal disc.

X Q. 125. Does it mention anything besides paper, a hard parchmentized paper for the center spot?

A. It says, at line 73, page 2, "Disc F may be made of a hard parchment paper or of any other paper so treated as to make it non-absorbent."

X Q. 126. That is the only description you find anywhere in the patent of the material of which the center spot may be made, is that right?

A. So far as I can find now, sir.

X Q. 127. You have described in great detail the purpose of this center spot as protecting the contents of the bottle from the effect of the liquid and also as forming a tight closure. Was McManus the first to do that so far as you know?

A. Just what do you mean by that question, do you mean the first to make a center spot?

[fol. 120] X Q. 128. Yes.

A. I don't think McManus was the first to make a center spot.

X Q. 129. Center spots were old long before McManus, weren't they?

A. I think so.

X Q. 130. And of course the cushion disc and metal shell, those were old long before McManus?

A. Certainly.

X Q. 131. So really all that McManus did was to put a parchment center spot on, is that right?

A. Isn't that what a center spot is to do?

X Q. 132. I am asking you isn't it a fact that what McManus did was to put on a parchment center spot?

A. Yes, a parchment center spot or any other paper material so treated as to make it non-absorbent.

X Q. 133. The only difference between McManus and the prior patents that you have described and the prior manufactures that you have described lies in the fact that McManus put on a parchment center spot?

A. According to his wording I would say that he put on a paper spot.

X Q. 134. "Parchmentized hard paper," just read it.

A. No, I would say——

X Q. 135. Read it, line 73, page 2.

A. It says, "any other paper so treated as to make it non-absorbent."

X Q. 136. He does say parchment?

A. He mentions parchment.

X Q. 137. How long have you been in the crown cap business altogether?

A. Since 1916, August 1st.

X Q. 138. Weren't you connected with concerns that made center spots prior to that?

A. I was not. I was never in the crown business prior to August 1st, 1916.

[fol. 121] X Q. 139. What about this Standard?

A. I stated that in purchasing the Standard Crown Company, which was the successor to the American Cork & Seal I found these patents and machinery to manufacture that type of crown.

X Q. 140. A good many of that type of crown had been made and sold at that time, by the American Cork & Seal Company before you bought it?

A. Very few.

X Q. 141. Didn't you have a conversation with Mr. Gutmann some time ago saying a great many had been sold?

A. I don't recall any such conversation.

X Q. 142. You do remember a conversation with Mr. Gutmann?

A. I had a conversation with Mr. Gutmann.

X Q. 143. What is this adhesive referred to in the McManus patent, is that a thermoplastic?

A. What page, please?

X Q. 144. Page 2, line 75, "by means of a binding medium preferably such as that which is used as a bond for the granules of the composition disc."

A. Where he talks of a binding medium used as a bond for the granules of the composition cork, he is talking about glue or gelatine which was the medium then mostly used for binding cork particles. When he talks about the bond then being used and generally used in the trade for uniting the cork disc to the cork shell he is talking about a heat-fusible medium. The bond then generally used was natural gum such as Manila gum, plus resin in an alcoholic solution, or coated on paper.

X Q. 145. Are you finished?

A. Yes, sir.

X Q. 146. Now, will you please be good enough to answer my question?

A. Yes, sir.

[fol. 122] X Q. 147. Is that material mentioned in the McManus patent as thermoplastic material or is it not?

A. The first is not. The type used as a binder for cork is not thermoplastic.

X Q. 148. How about the material used for putting the center spot on, is that thermoplastic?

A. As I read this patent he could use either type, either the gelatine type which was used to bond the cork particles or the thermoplastic type which was used to fasten the cork disc to the shell.

The Court: Mr. Scull, is this man an expert?

Mr. Scull: Yes, your Honor.

The Court: And he is the only one you are going to call?

Mr. Scull: Yes.

X Q. 149. Perhaps I am not quite clear, but what I want to know is, this material that he refers to as securing the center spot F to the crown cork, is that thermoplastic or not, can't you say yes or no?

A. I cannot answer it the way I know you would like me to. He states two mediums for fastening this spot, either thermoplastic or the gelatine type of glue. One is thermoplastic and one is not.

X Q. 150. As I understand your testimony you are reading McManus's patent to indicate to you that he might or might not employ thermoplastic?

A. So far as the patent says here he can use either type, but he speaks further on of further plasticity in his binding medium.

X Q. 151. Now, you say you went into the center spot business in 1916?

[fol. 123] A. In 1916 the only center spot mechanism I had was that portrayed in making the Bartlett crown.

X Q. 152. What business were you in in 1916?

A. I bought the Standard Crown Company in 1916.

X Q. 153. You must have known of the other manufacturers of center crowns?

A. I had never been in any business prior to the time of buying the Standard Cork.

X Q. 154. At that time weren't there other crown manufacturers in the market besides you?

A. Yes.

X Q. 155. Who were they?

A. The American Cork & Seal, Hutchison, Crown Cork, Ferdinand Gutmann and a few others.

X Q. 156. They were all making center spots, weren't they?

A. So far as I know I don't think any of them.

X Q. 157. Weren't the Crown Cork & Seal making center spots in 1916?

A. I don't know.

X Q. 158. When did you first see a center spot apart from this Bartlett patent?

A. I don't remember any great number of center spots for many years thereafter.

X Q. 159. What do you call many years?

A. I mean by that I had no means of going into other persons' plants except when the proprietor cared to show me the plant. There was only one center spot that I knew of at that time and that was the White Rock.

X Q. 160. And that is what is known as the Nielson?

A. It is made under the Nielson or the Berg patent.

X Q. 161. When did you first hear of center spots?

A. After I bought the Standard Crown Company.

[fol. 124] X Q. 162. That was 1916?

A. 1916.

X Q. 163. Were there any other center spots besides the White Rock?

A. Not that I know of.

X Q. 164. When did you first see any other center spots except the White Rock?

A. I have no recollection.

X Q. 165. You did not look it up at all?

A. I cannot remember when I first heard of another spot, that would be impossible.

X Q. 166. Were you buying or selling spots?

A. We were not manufacturing or selling any spot crowns at that time.

X Q. 167. How long did you stay with the American Cork & Seal—or how long did you stay in the crown business after you bought this patent?

A. Which patent?

X Q. 168. This Standard patent that you have been talking about.

A. That was part of the assets of the Standard Crown Company which I bought on August 1st, 1916.

X Q. 169. What did you do after that?

A. I operated that company until March of 1929.

X Q. 170. Making center spots all the time?

A. No, sir.

X Q. 171. What were you making?

A. Regular crowns, composition and natural cork crowns.

X Q. 172. And you were selling those around to the various users of crowns?

A. Yes.

X Q. 173. And weren't you in a position to see the various center spots that came out?

A. Yes.

X Q. 174. And you saw the first spot when?

A. I saw the White Rock.

X Q. 175. Apart from the White Rock crown.

A. Every other—there seemed to be no great sale of spot crowns until some time later, in 1927 or 1928, when I dis- [fol. 125] covered that Anheuser-Busch was using a center spot crown. I, like all other crown manufacturers, did not know that this was coming on the market until we saw the bottled goods and then we all got busy trying to manufacture them. There was a great need for them but we did not know how to make them.

X Q. 176. Didn't McManus tell you how to make one?

A. I was not interested, in those days, in the McManus patent.

X Q. 177. When did you first hear about that?

A. When I secured the White Rock patents and the machinery, then I became interested in these patents.

X Q. 178. And that was in 1916?

A. Oh, no, sir, that was in 1924.

X Q. 179. What patent did you purchase when you bought the Stewart or White Rock?

A. I did not purchase, I made a deal with Mr. Stewart, Jr., and got control of the use of the patent and machinery for manufacturing this type of crown. The machinery was all moved to my plant in Philadelphia.

X Q. 180. Where was it moved from?

A. Half of the machines were in Wilmington and the others were in Boston, but all these machines came to me from Wilmington and Boston.

X Q. 181. This White Rock cap, as you call it, which consists of a metal center spot flanged in or slotted into the cork, that was made long prior to 1916, wasn't it?

A. As far as I know it was.

X Q. 182. That was made at Millis, Massachusetts, by the United Cork & Seal Company?

A. I think it was.

X Q. 183. Were you connected with that concern at any [fol. 126] time?

A. No, sir, I was connected with no other business, any business until 1916, August 1st. I was a mining engineer.

X Q. 184. Did you ever use parchment for center spots?

A. I have tried them out.

X Q. 185. How did they go?

A. Not very well.

X Q. 186. It did not go well at all, did it?

A. No, sir.

X Q. 187. If somebody said that they tried paper parchment, that is parchment paper with paraffin to cover the cork, and that that would not do because the water disintegrated the paper, would you say that was a correct description of the defects of parchment?

A. That would depend entirely on the type of parchment. In my tests of parchment paper I got various grades of efficiency. One is better than another. What one manu-

facturer might think would do I perhaps might think would not do.

X Q. 188. But you never saw on the market a center spot crown with a parchment center spot, did you?

A. Not to my knowledge.

X Q. 189. Now, how long have you been with the Crown Cork & Seal Company altogether?

A. I entered their employ in June of 1930, and I left them in August of 1934.

X Q. 190. When did you go back?

A. When did I go back?

X Q. 191. Yes.

A. I never have been back.

X Q. 192. You left in June of 1934?

A. Yes, sir——

The Court: August he said.

The Witness: August of 1934.

X Q. 193. You are not in their employ now?

A. I am getting paid for my services here, yes.

[fol. 127] X Q. 194. I mean, you are not connected with their regular organization?

A. I am not, sir.

X Q. 195. You testified in reference to this re-issue patent 19,117.

A. Yes.

X Q. 196. I believe your testimony is that there are three vital elements there and one included the heated plungers, that's right, isn't it—that plunger has to be heated, hasn't it, that cutting plunger?

A. Just what do you mean by that?

X Q. 197. You spoke of this plunger here marked "Second Step" showing a gas heater around it.

The Court: That is referring to exhibit what?

X Q. 198. Exhibit 21. Step down and look at it if you cannot see it from there.

A. I can see it all right, I made it.

X Q. 199. Well, the question that I am asking you is, the cutting punch has to be heated, doesn't it?

A. If you use that particular method of applying heat then you can heat the plunger. There are other methods you can use.

X Q. 200. There are other methods known as cold plungers?

A. Certainly.

X Q. 201. For cutting?

A. Yes.

X Q. 202. What is the difference between that reissue patent No. 19,117 and the patent to Warth 1,967,195 as shown on Exhibit 22; what is the difference in operation?

A. The only difference in operation is that Warth shows a different method of having heat available at the time of placing the disc and center disc on the compression disc.

X Q. 203. You say he has it available, does he use it?

A. He cannot use it until you place the center spot on there.

[fol. 128] X Q. 204. Now, you have described what you called the Cohn method and made a diagram of that. Did you ever see the Cohn method carried out?

A. No, sir.

X Q. 205. As I understand you this drawing that you made and your testimony is based on your conclusion of what the patent shows?

A. Yes, sir.

X Q. 206. You know nothing about the practical operation?

A. I have never been in Mr. Gutmann's plant in years.

X Q. 207. Now, you said the White Rock Company purchased its natural cork from the Crown Cork & Seal Company?

A. Yes.

X Q. 208. How do you know that?

A. When I was working there they were purchasing great quantities of completed crowns and this high grade natural cork from the Crown Cork & Seal and I presume they are still doing it. The last one that I opened up had their mark on it.

X Q. 209. You testified as to two patents to Warth 1,899,782 and 1,899,783. The first one is for a strip of material coated with gutta percha and the other one is for a cap having a glazed center spot. Just what is the difference between the material shown in these two patents, and the McManus patent—I mean of course as refers to center spots only.

A. Patent No. 782 describes a method of placing gutta percha——

X Q. 210. I think you have the wrong one there.

A. No. 782.

X Q. 211. All right, go ahead.

A. It describes a method of placing gutta percha on the facing material.

X Q. 212. Now, I asked you what was the difference between that and the McManus patent.

[fol. 129] A. I am sorry, but I don't quite get that question.

X Q. 213. Well, patent No. 782 describes and claims a strip material. For instance, one of the claims in suit——

Mr. Scull: I object, your Honor.

X Q. 214. Doesn't 782 show a strip of laminated material coated with gutta percha?

A. Shows a strip of facing material coated with gutta percha.

X Q. 215. Shows a strip of high gloss, hard-finished paper coated with gutta percha, doesn't it?

A. 782? He mentions both, paper, high gloss paper and metal foil.

X Q. 216. What is the difference between McManus' patent and a center spot made out of high gloss varnished paper?

A. McManus discloses any suitable paper so treated as to make it non-absorbent. This high gloss paper has that quality. He describes two methods of adhering the disc to the resilient liner, one gelatin type, the other thermoplastic. This patent describes a disc with thermoplastic gutta percha.

X Q. 217. I am talking about the paper. What is the difference in the paper, the distinction between McManus and these two Warth patents?

A. McManus says any suitable paper that is non-absorbent and flexible enough; he does not say anything about a varnish coating. He does not describe a particular type of paper such as described in this Warth patent. The only paper he mentions is parchment.

X Q. 218. As I recall your testimony a few minutes ago, didn't you say it was necessary in a great many types of [fol. 130] beverages to have a hard finish, high gloss varnished paper for a center spot?

A. I did, sir.

X Q. 219. And would McManus be able to meet that requirement, or wouldn't he?

A. If his paper—and he said any suitable paper—had these qualities, then it would be all right.

X Q. 220. I am not quite clear as to just what business you were in prior to the time you went to the Crown Cork & Seal Company. That was when, in 1930?

A. I was in the employ of the Bond Manufacturing Company in Wilmington, Delaware. They are a manufacturer of crowns and cork products.

X Q. 221. What else was Bond making at that time?

A. Collapsible tubes for tooth paste, and so forth.

X Q. 222. Weren't they making center spots?

A. Not at the time I was in their employ.

X Q. 223. You left them in 1930?

A. Left them in 1930.

X Q. 224. You were never in business for yourself then after you gave up this Bartlett patent to Crown?

A. I have never been in business for myself since March, 1929, when I sold the assets of the Standard Crown Company.

X Q. 225. What were you making while you were with the Crown of Stand Company?

A. The Standard Crown Company, you mean?

X Q. 226. Standard Crown Company.

A. I was making composition crowns, natural cork disc crowns, and the White Rock type of center spot crowns.

X Q. 227. Nobody ever accused you of infringing McManus' patent or any other patent while you were there in business for yourself?

A. No, sir.

[fol. 131] X Q. 228. You spoke a moment ago—you mentioned in your testimony, in discussing these various patents, steps that were well-known in the art. Just what did you mean by that?

A. Will you repeat that?

(Reporter repeated last question.)

A. Every crown manufacturer certainly knew how to assemble a crown, that is, place the cork disc and adhere it to the metal shell. Every crown manufacturer knew how to use multiple die processes so as to punch out the shell. Every crown manufacturer was familiar with the coating

or lithographic processes for placing a sanitary lacquer on one side and a necessary decoration on the other. Those are well known steps in the art, together with the machines for doing these steps, which were well-known in the art.

X Q. 229. By the art, approximately how many manufacturers would you say were engaged in that line of business?

A. When?

X Q. 230. At the time you mentioned.

A. In 1916?

X Q. 231. I did not say 1916. You referred in your direct testimony to various steps well-known in the art. What time were you referring to?

A. I was referring to the time of the McManus application in 1915.

X Q. 232. That was all well known in the art at that time?

A. Yes, sir, those steps.

X Q. 233. They all knew about the steps of heating and pressure, didn't they?

A. I imagine you refer to the method of adhering the cork disc to the shell.

[fol. 132] X Q. 234. That was concededly well known?

A. It was well known, but there were many of us didn't know how to do it properly.

X Q. 235. Did McManus know how to do it, as far as you know?

A. At when? 1915?

X Q. 236. Yes.

A. As far as I know, when I entered the art in 1916, the method of using gum copal, resin combinations in solution or on a paper, were well-known and established in the art.

X Q. 237. How about putting the center spots on, was that well known?

A. It was not known, sir.

X Q. 238. That is, you didn't know it?

A. I didn't know.

X Q. 239. Do you know how McManus secured his center spots in his patent?

A. What do you mean by—how would I know it, by reading the patent or by visualizing it?

X Q. 240. I am asking you if you knew. Do you or do you not?

A. I was in his factory later on and I saw certain methods of making spot crowns.

X Q. 241. Approximately what date was that?

A. I cannot give you the year or the exact date. I don't remember. There was no reason for me to remember.

X Q. 242. Was it while you were in this business of selling center spot crowns like the Bartlett patent?

A. It was prior to that, I would say around 1922 or 1923 or earlier, before I got the White Rock.

X Q. 243. What kind of center spot was he putting on that?

A. He was using, as I remember it, a gummed adhesive and wetting the disc.

X Q. 244. What sort of disc was he using?

A. Composition cork disc.

[fol. 133] X Q. 245. What sort of center spot was he using?

A. Metallic on paper with gum backing.

X Q. 246. How was that fed into the machine?

A. By strip feeding mechanism.

X Q. 247. You mean the metallic metal was coated first with the gum and then fed through——

A. He made a laminated material consisting of metallic foil, paper, some other composition, and a gummed backing.

X Q. 248. All right. How was that material secured to the crown cork?

A. It was fed into a cold punch. The disc, where it reached the position where the punch cut the disc out of the strip material, was wetted or dampened by a wet buffer which made the adhesive on the back of the strip material, when it was placed on the composition cork disc, gummy, just exactly like a postage stamp.

X Q. 249. Did he have any heat anywhere, either on the——

A. He had no heat on it, to my knowledge.

X Q. 250. Either on the crown cork or the center spot?

A. Not that I know of.

X Q. 251. Just a cold adhesion?

A. Just a cold adhesion, as far as I know or remember.

X Q. 252. Did you see any of those on sale at any time?

A. I did not, sir.

X Q. 253. Do you know anything about—coming back once more to the Cohn patent, you speak of pressure. You

do not know anything about how much pressure is applied in the various steps of the method there?

A. I have never seen that machine in operation.

X Q. 254. Referring to your discussion of the patent to Warth, 1,967,195, as I recall your testimony, you spoke of a cool plunger. Can you point out on that drawing which [fol. 134] is the cool plunger?

A. The last punch, where it is marked fifth step.

X Q. 255. That is the only cold plunger shown and described in the Warth patent 1,967,195?

A. I think, as I read the patent, that he shows you can use either preheat on the disc itself or a heated plunger also.

X Q. 256. Never mind how you read the paper. You were with the Crown Cork & Seal Company from 1930 until 1934. How did they use it there?

A. The Crown Cork & Seal uses a heated—used at that time a heated plunger which heated the cork disc prior to the punching operation.

X Q. 257. How about the cutting plunger that Crown Cork & Seal used? Was that heated or cold, the one that cut the spots out?

A. The cutting plunger on a running machine is never cold. If you ask me, it always gets heated.

X Q. 258. Of course, we all know that, but was there any additional heat furnished to this one?

A. No, sir.

X Q. 259. Just what was your position while you were with the Crown Cork & Seal Company?

A. I was in charge of the research and development laboratory.

X Q. 260. You did not have anything to do with the practical manufacturing of these caps, did you?

A. To some extent. My job was to work on anything which I thought could be improved in the manufacturing operation of the Crown Cork & Seal, and I had one of these spotting machines in my laboratory and was continually experimenting with the same.

X Q. 261. This speed you spoke of, what was it, 500 a minute?

A. Over 500 a minute, sir.

[fol. 135] X Q. 262. That means they are spotted at the rate of 500 a minute, isn't that right?

A. Yes, sir.

X Q. 263. That is just putting the spotting cap on?

A. Yes.

X Q. 264. That does not include putting the cork in the shell?

A. No, sir.

X Q. 265. And the various other steps?

A. No, sir, although we assemble our crowns at that speed also.

X Q. 266. That is in a different——

A. Yes, in a different machine.

The Court: How are they fed, right from one machine to the other?

The Witness: No, we have a large hopper and each machine just handles one row of crowns.

X Q. 267. Now, in discussing this 4620 adhesive, as I recall your testimony, you said something about the amount of pressure in pasteurizing; am I right in that? Didn't you say there was a certain amount of pressure used in pasteurizing?

A. I said that in using a pasteurizing temperature, which is normally 142 degrees Fahrenheit, I tested the crowns under this condition and at around 190, and under sterilization temperature of 240 degrees, which requires pressure.

X Q. 268. Did you see anything to that effect in any of the advertisements that the defendant Gutmann & Company put out about their crowns?

A. I haven't read Mr. Gutmann's advertisements.

X Q. 269. You don't know anything about that at all?

A. I am not interested in sales.

[fol. 136] X Q. 270. I understand you to say that this nitrocellulose adhesive is very much superior to gutta percha. That is correct, isn't it?

A. For metallic foils.

X Q. 271. It isn't so good on paper foils?

A. It isn't so good on that, on varnished paper.

X Q. 272. Do you know why the Crown Cork & Seal Company did not adopt that earlier if it is so much better?

A. We tried to adopt it in 1933, but you must remember we—I use the word "we"—were using a tremendous quantity, making over nine million gross per year, and if we wanted to put that out at that time, we had to have equipment, large equipment. We started in, early in 1933, I think it was sometime in January, as I remember it, and

we saw Waldron Company over here in New Jersey and we ordered a long coating oven that cost over $10,000. We had to buy winding machines, we had to buy stripping machines, learn how to do it properly, to cut this coated foil into narrow strips, as it is coated in very wide strips. We cannot coat just one narrow strip in this huge plant. We have to put out enough so that we can fill the demand. So it always takes longer in a huge plant such as Crown Cork & Seal, to put anything across, than it does in a smaller plant. That is obvious, to my mind.

X Q. 273. Then, I understand you to say the first attempt to use this was in January, 1933, is that right?

A. That is the first time that I knew about it from the other department. I have been working for years on the use of cellulose and other adhesives, I have spent a great many years at it.

X Q. 274. And you could not find anything until 1933, [fol. 137] when you found this cellulose from the Du Pont?

A. What do you mean, what I found?

X Q. 275. Well, the Crown Cork & Seal.

A. As far as the Crown Cork & Seal, I reported to Mr. McManus earlier than that that I had perfected or thought I had satisfactory nitrocellulose adhesive, resin adhesive, much earlier than that.

X Q. 276. You discussed that Warth reissue 19,117. Where did you find any cooling under pressure described there?

A. Line 98, page 3, "The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger."

Mr. Warland: I think that is all.

Re-direct examination.

By Mr. Scull:

R. D. Q. 277. Just one question. You spoke about the use in the Crown Cork plant of this heating in accordance with the Warth method patent 1,967,195. I think you said that the combined punch and plunger does get warm.

A. Yes, sir.

R. D. Q. 278. Where does that come from, where does that heat come from?

A. You have a series of heated crowns running at the rate of 500 a minute under the plunger. They tend to heat

up the punching disc. The radiation from that heat, and the after heat, tend to heat this plunger. I have made innumerable tests of the temperature of these plungers where the punch is not—I mean of the punch, where it isn't heated, and I found, for example—

The Court: That is not intentionally.

[fol. 138] The Witness: It was not intentionally heated. And I found, for example, on the Johnson machine it will run as high as 140 degrees Fahrenheit. I took this temperature with a Brown potentiometer.

R. D. Q. 279. Supposing there had been no heat on the caps, and that the only heat was from a punch or plunger heated to 140 degrees, would that be enough to make the gutta percha tacky?

A. I don't think 140 degrees alone would give you sufficient heat to keep the spot set. In other words, so it wouldn't move, so that the center spot would not move in the movement of the crown to the next stop position.

R. D. Q. 280. Supposing I put a device on that punch that will keep it absolutely cold, and when I say cold, well, let us take room temperature, 70, how would that work, assuming now that the caps are preheated, would that have any effect, deleterious or otherwise?

A. It would have only this effect, that you would require more heat prior to the crown reaching the punch than if the punch had some heat.

R. D. Q. 281. In other words, by having the punch at about 140 simply means that you do not have to put quite so much heat into the crowns themselves?

A. Yes.

R. D. Q. 282. In other words, that the sticking is due to the heat which flows both from the punch and from the cork disc?

A. Absolutely. And also you are up against a very practical condition: You do not want to heat this cork disc any more than you have to because should this temperature rise, say, only 20 degrees in the prior heat zone, you will blacken the cork and those crowns cannot be sold.

[fol. 139] R. D. Q. 283. Then, as I understand, by having the punch itself heated by this radiation you can drop the amount of heat and therefore the temperature which you put into the crown, and avoid that difficulty, is that it?

A. Absolutely.

Recross-examination.

By Mr. Warland:

R. X Q. 284. Will you tell us the difference in operation, difference of method between 1,967,195 and the reissue 19,117?

A. 195?

R. X Q. 285. That is this one right here. (Indicating.)

A. In the reissue patent Warth shows in his drawing a heated punch. In the 195 patent he shows a method of heating the crowns by directly placing heat in the cork discs themselves prior to reaching this punch. That is the essential difference between the two patents.

(Witness excused.)

FREDERICK ERWIN FUSTING, called as a witness on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. You are vice-president of the Crown Cork & Seal Company, the plaintiff in this case?

A. Yes, sir.

Q. 2. Where do you reside?

A. Baltimore.

Q. 3. What is your address, please?

A. No. 5105 Falls Road Terrace.

Q. 4. Will you please state the relation of the plaintiff's [fol. 140] company with respect to the former companies which it succeeded in business?

A. The plaintiff company was formed through the consolidation of the New Process Cork Company and the N. Y. Improvement Patents Corporation. The plaintiff company thereafter acquired the assets of the Crown Cork & Seal Company of Baltimore and the net effect is that all of the assets of the New Process Cork Company and the Crown Cork & Seal Company of Baltimore became the property of the plaintiff company.

Q. 5. Please state whether this instrument which I hand you shows the consolidation of the New Process Cork Company which I understand was a New York corporation

and the New York Improvement Patents Corporation, to form the plaintiff company?

A. This is a certified copy of a certificate of consolidation forming the Crown Cork & Seal Company, Inc..

Q. 6. And how long have you been employed by the plaintiff company and its predecessors?

A. A little over 31 years.

Q. 7. State whether or not part of your duty has been that you have had charge of the patent records of the company?

A. I have had charge of the patent records substantially since the formation of the plaintiff company.

Q. 8. Does the same apply to the Crown production records?

A. I have had charge of the Crown production records of the plaintiff company and its predecessor running back through 1919.

Q. 9. And through that period you are generally familiar with what those records show?

A. Yes.

Q. 10. Now, referring to the McManus patent No. 1,- [fol. 141] 339,066, in suit, can you identify the three instruments which I now hand you?

A. I can.

Q. 11. Please state what they are.

A. The first is a license from the Cem Securities Corporation to the New Process Cork Company. The next is an assignment from Charles E. McManus to the Cem Securities Corporation. The next is an assignment from the Cem Securities Corporation to the Crown Cork & Seal Company, Inc.

Q. 12. And each of those instruments refers to and covers among others the McManus patent in suit, does it not?

A. What is that number?

Q. 13. No. 1,339,066.

A. Yes.

Mr. Darby: I now offer in evidence the first instrument, the license from the Cem Corporation to the New Process.

(Marked Plaintiff's Exhibit 25 in evidence.)

Mr. Darby: I also offer in evidence the second instrument, the assignment from McManus to Cem.

(Marked Plaintiff's Exhibit 26 in evidence.)

Mr. Darby: I now offer in evidence the third instrument, the assignment from Cem to Crown.

(Marked Plaintiff's Exhibit 27 in evidence.)

It is Stipulated by and between counsel for the respective parties hereto that photostatic copies may be offered of the above in lieu of the originals.

Q. 14. Now, referring to the third instrument, Exhibit 27 and more particularly to the last paragraph of the same, [fol. 142] which excepts from the assignment an exclusive license to the New Process Cork Company theretofore outstanding and states that the same "heretofore been acquired" by plaintiff. Have you in your records any instrument formally transferring this exclusive license under the McManus patent in question, to the plaintiff.

A. I have made a search but failed to find where there is any instrument specifically or formally transferring this license as such. Based on my examination it is my understanding that this license, being among the assets of the New Process Cork Company, formally became the property of the defendant through the certificate of consolidation——

Q. 15. You mean of the plaintiff?

A. Oh, yes, excuse me, of the plaintiff, through the certificate of consolidation which is offered in evidence.

Q. 16. In other words there was no written transfer of the exclusive license, as such, but it went over to the plaintiff as part of the general assets of the New Process Company?

A. That is right.

Q. 17. Are you familiar with the types of paper spot crowns manufactured by the plaintiff and the kind of adhesive used for uniting the paper spot to the cork disc?

A. I am.

Q. 18. Will you please state what your knowledge is so far as this paper center spot crown is concerned?

A. The paper spot crowns, as manufactured by the plaintiff, consist of a paper having a coating of varnish on one side, and commonly sold by us as glazed paper spots, having a coating of varnish on one side and adhere to the cork disc

through the medium—with an adhesive of gutta percha. [fol. 143] The paper is commonly known as express paper. We then make another type of paper spot which we sell as the Rao spot which I understand is made of a bleached kraft paper varnished on one side and adhering to the cork disc through the means of gutta percha adhesive.

Q. 19. Can you state whether or not two types of caps in this box which I hand you represent the two types of paper spot caps, namely the so-called Rao and the glazed, which are manufactured by the plaintiff, and have been?

A. They do.

Q. 20. In other words, the light colored paper is the so-called Rao or bleached spot and the dark is the express paper spot, is that right?

A. Right.

Mr. Darby: I offer in evidence the box of caps identified by the witness.

(Marked Plaintiff's Exhibit 28 in evidence.)

Q. 21. Do you know whether or not the plaintiff has made any paper center spot crowns with adhesive other than gutta percha, for uniting the spot to the cork disc?

A. We have not.

Q. 22. Now, referring to these caps in Exhibit 28, these are undecorated caps I take it, and I understand that a great deal of the production is decorated in many colors, is that correct?

A. That is correct.

Q. 23. Have you prepared an available list showing the production, only by the plaintiff, of paper center spot crowns from 1928 until 1934?

A. I have.

[fol. 144] Q. 24. I show you this paper, is this the record?

A. Yes, this is it.

Q. 25. Will you please state in a general way what this record shows?

A. This is a record of sales——

The Court: Why not offer it in evidence and save time?

Mr. Warland: I have no objection, your Honor.

Mr. Darby: I offer this paper now being read by the witness in evidence.

(Marked Plaintiff's Exhibit 29 in evidence.)

The Court: That is his testimony in diagrammatic form, that is all. That is the only purpose for which it is received.

Mr. Warland: Yes, your Honor.

Q. 26. Referring to the Exhibit 29 is there any explanation for the apparent decline in the last two years?

A. The decline in sales in 1933 and 1934 as compared with 1930 when the sales had reached a peak of approximately two million, one hundred thousand gross, we attribute in part to sales by competitors.

Q. 27. Now, in the column under soft drink, those figures represent the total soft drink crowns produced and the last percentage figure indicates the percentage each year of paper spot, to the total soft drink crowns?

A. The total soft drink crowns by the plaintiff only, that is correct.

Q. 28. Do you know what the principal purchasers of these paper spot crowns used prior to 1928?

A. They used the natural cork discs.

[fol. 145] Q. 29. Can you name some of the principal users of these natural cork disc crowns who turned exclusively to this paper spot crown?

A. Yes, Cliquot Ginger Ale people, the Canada Dry Ginger Ale, James Vernor & Company of Detroit, and the Gosman Ginger Ale Company of Baltimore.

Q. 30. Is the action of these companies typical of other large companies throughout the United States?

A. Yes, the action of those four is typical of most companies embodying ginger ales and such types of beverages. They follow closely the leadership of those companies that I have named, and adopted paper spot crowns.

Q. 31. Now, referring to this list which I hand you, does this indicate the action of one or more typical purchasers, the names of which you do not wish to disclose for trade reasons?

A. Yes. This record indicates from 1925 to 1927 inclusive these customers were using from 500,000 up to over 800,000 gross a year of the natural cork disc crowns. Commencing with the year 1928 they used 944,000 natural cork and 36,000 paper spots. By 1930 their usage or purchase from the plaintiff of natural cork disc crowns had dropped from approximately 950,000 in 1928 to but 50,000 in 1930, whereas during the same period their purchase of paper spot crowns increased from 36,000 gross to 1,125,000 gross.

Mr. Darby: I offer in evidence the list just referred to by the witness.

(Marked Plaintiff's Exhibit 30 in evidence.)

Q. 32. Do you know what if any savings were effected by [fol. 146] these companies in acquiring paper spot crowns instead of the natural cork crowns which they previously used?

A. The-re savings were from three to six cents a gross.

Q. 33. And were these savings typical of other customers who did likewise?

A. They were typical. The savings however were not always the same, it depended on the relationship of price as between the paper spot and the natural cork at the time that they adopted the paper spot and it depended also on the grade of natural cork crowns that they had been using.

Q. 34. Now, referring to natural cork crowns are you familiar with the experience of the Crown Cork & Seal Company users generally of these natural cork crowns, prior to the introduction of these paper spots?

A. I am.

Q. 35. State in a general way the extent of the business of the plaintiff in natural cork crowns prior to 1928. I hand you a list that you prepared for me showing the production in natural cork crowns from the year 1923 on.

A. This statement shows from 1923 to 1927, inclusive. We sold natural cork disc crowns, averaging four million gross a year. Commencing with the year 1928, when the paper spot crown was introduced we sold a total of approximately 61,000 gross. By 1930 these sales of paper spot crowns had increased to approximately 2,100,000 gross whereas the sales of natural cork disc crowns had fallen to but 1,220,000 gross.

Mr. Darby: I offer in evidence the list referred to by the witness.

(Marked Plaintiff's Exhibit 31 in evidence.)

[fol. 147] Q. 36. Is this list which I now hand you a more complete statement from 1917 to date, on natural cork crowns?

A. Yes, this is a statement of sales of natural cork crowns only which shows that in 1917, our sales of natural cork crowns amounted to over 17,000,000 gross. On down to 1920,

12,000,000 gross and from then on until about 1927 an average of about 4,000,000 gross. The sales in 1934 were less than 1,000,000 gross.

Mr. Darby: I offer the list just referred to by the witness in evidence.

(Marked Plaintiff's Exhibit 32 in evidence.)

Q. 37. Are you familiar in a general way with the relationship of plaintiff's manufacture of natural cork crowns from 1917 to 1930 to the total industry's production? What percentage would plaintiff's production constitute?

A. I would say between 85 and 90 per cent probably.

Q. 38. Of the total industry's production?

A. Yes.

Q. 39. Of natural cork disc crowns?

A. Natural cork disc crowns, yes, sir.

Q. 40. Will you please state what has been the experience of the plaintiff so far as you personally know with reference to the satisfaction which these natural cork crowns had been giving customers?

A. The natural cork discs of course being made from cork which is one of nature's products were always subject to natural imperfections. Our customers were always having trouble with them and we were always receiving complaints as to the quality of natural cork crowns. In [fol. 148] 1925 I personally made a trip to Spain and Portugal for the purpose of trying to improve the quality of natural cork discs that we were receiving.

Q. 41. I believe you said you had a plant in Spain and Portugal.

A. We did have a plant in Spain and Portugal and also I went to try and overcome the terrific losses which these plants were sustaining. I took with me at that time a man who was qualified as an expert on the quality of natural cork discs. He remained there for a year and he did not release any shipment of discs until they had been previously inspected.

Q. 42. As I understand your testimony these natural cork crowns have been a constant source of grief to manufacturers?

A. Yes.

Q. 43. What had been the difficulties with them that were causing these troubles?

A. The difficulties commonly experienced in the use of natural cork discs was the cork taste imparted to the beverage and leakage due to imperfections in the natural cork by the natural pores in the cork or what they call knots happening to strike at the sealing rim of the bottle and also cork dust which flecks out of the natural holes in the cork. Also leakage caused by brittleness—in the crowning operation the brittleness would cause leakage, and generally there has been a constant source of complaint there always.

Q. 44. How long do these troubles date back?

A. These troubles dated back from the time that I first went with the company and that is 1903.

Q. 45. Was there a demand on the part of the manufacturers and customers using them for something to take their place?

A. There was a constant demand for something that would replace them that would be an improvement.

[fol. 149] Q. 46. Would the composition disc do that?

A. It met part of that situation but not all.

Q. 47. In other words there was quite a field where the composition disc would not fill?

A. Exactly. I think that is illustrated by the tremendous swing over to the spots as referred to.

Q. 48. How serious were these defects to the Crown Cork & Seal, what did they mean in dollars and cents?

A. Well, on one occasion we paid a claim to the Gosman Ginger Ale Company of over $6400 for crowns which represented a sale to the Gosman Company of but $270. On numerous occasions we had to take back large quantities of crowns simply because the customer had complained of the quality and complained of the appearance, or in some way objected to them.

Brooklyn, N. Y., November 7, 1935.

Met pursuant to recess at 10:30 a. m.; present as before.

FREDERICK ERWIN FUSTING, resumed:

Direct examination continued.

By Mr. Darby:

Q. 49. When the Court recessed yesterday you were telling us of complaints regarding the use of natural cork crowns.

A. Yes.

Q. 50. Now, were these complaints unusual or were they a common thing in your experience with the plaintiff company?

A. In my experience the complaints with the use of natural cork disc crowns has been something that has been [fol. 150] going on throughout my entire period with the company. I can recall particularly, I think it was in the Fall of 1926, we were required to take back some four carloads of crowns from the Anheuser-Busch Company and place aluminum spots on them, which incidentally we had to do without cost to the Anheuser-Busch Company in order to satisfy the complaint.

The natural cork disc crown, while the most expensive crown which we sold, was also the crown that caused more trouble both to us as a manufacturer and also to the user.

Q. 51. You testified yesterday that certain large customers at the particular time that they changed from the use of natural cork crowns to the paper spot crowns, such as Plaintiff's Exhibit 28, effected savings of from 3 to 6 cents a gross at that time.

A. Yes.

Q. 52. Now, can you give the Court some idea of what that saving would mean today for example if they had to use the same grade of natural cork crowns instead of the paper spot crowns of Plaintiff's Exhibit 28?

A. If customers such as are users—such as Cliquot Club and Canada Dry and like companies using the highest grade natural cork discs used natural cork discs crowns today in lieu of spot crowns there would be an increased cost of approximately 14 cents a gross over and above the price of the spot crown.

Q. 53. And would that apply to all grades of natural cork crowns; let us take the greatest average cost in using the highest grade, take a company such as Cliquot Club and Canada Dry. In that case would it be more?

A. In that case it would probably run a little higher.

[fol. 151] Q. 54. Now, as I understand it, until the plaintiff introduced the paper spot cap of Plaintiff's Exhibit 28, the plaintiff, and in so far as you know the rest of the industry, had nothing acceptable to offer the large manufacturers of ginger ale, such as Cliquot Club and Canada Dry and manufacturers of other acidulated beverages but this natural cork crown, is that correct?

A. That is correct.

Q. 55. And it was not until, so far as you know the paper spot crown of Exhibit 28 was offered that they found a substitute for these expensive and troublesome natural cork crowns?

A. So far as I know, yes.

Q. 56. Are you familiar with the types of paper spot crowns made by manufacturers other than the plaintiff?

A. In a general way, yes.

Q. 57. Will you state what your knowledge is as to manufacture by others of the same paper spot crowns as Plaintiff's Exhibit 28?

A. Prior to the introduction of paper spot crowns by us in 1928 there were no other crowns of this type on the market so far as I know. Upon introduction of the paper spot crown by us and its rapid acceptance by the trade, practically all of the larger crown manufacturers adopted the identical type crown.

Q. 58. Can you identify this list which I hand you as a list which you have prepared showing the manufacture by the plaintiff of all types of spot crowns, both metal foil and paper spot?

A. I can.

Mr. Darby: I offer this list identified by the witness in evidence.

(Marked Plaintiff's Exhibit 33 in evidence.)

[fol. 152] Q. 59. You testified with reference to the larger soft drink bottlers turning to paper spot crowns in lieu of natural cork crowns.

A. Yes.

Q. 60. Can you state the trend of prior users of natural cork crowns in connection with other beverages after aluminum spot crowns were introduced by the plaintiff?

A. Prior to 1925 we were not equipped to manufacture spot crowns in a large way. Toward the end of 1925 or

possibly 1926 we adopted improved methods of manufacture and following this the users of cereal beverages rapidly adopted the use of aluminum spot crowns in lieu of natural cork crowns.

Q. 61. Can you mention one or more of the typical users?

A. I would mention the Anheuser-Busch Company as being indicative.

Q. 62. When you referred to 1925 or 1926, I suppose you were speaking roughly from your recollection as to the dates?

A. That is right.

Q. 63. Can you identify the list that I hand you as a record of typical users of metal foil spot crowns who adopted the same in lieu of their former use of natural cork crowns?

A. I can.

Mr. Darby: I offer in evidence the list identified by the witness.

(Marked Plaintiff's Exhibit 34 in evidence.)

Q. 64. Can you explain what accounts in any way for the sudden increase in production in 1933 and apparent decline in 1934?

A. This record shows that prior to 1927 these several users used approximately 600,000 gross of natural cork crowns per annum. Commencing with 1927 and running on down to 1933, this picture changed in the year 1933 [fol. 153] they used approximately 5,000 gross of natural cork crowns and 1,423,000 gross of aluminum spot crowns.

The decline between 1933 and 1934, the latter year showing slightly over 700,000 gross, was due in part to the excessive demand immediately following the legalization of beer, and in part to the manufacture by others of the same type of crown in the year 1934.

Mr. Darby: That is all.

Cross-examination.

By Mr. Warland:

X Q. 65. As I recall your testimony yesterday you said that part of the falling off of sales was due to competitors in the years 1931, 1932, 1933 and 1934, is that right?

A. You are speaking now of falling off of what?

X Q. 66. Well, take your natural cork non-spot that is Exhibit 32.

A. Exhibit 32 is a statement of sales of natural cork crowns and doesn't give any other figures.

X Q. 67. Well, take Exhibit 30.

A. I would say that that would apply more particularly commencing, say, with the year 1932 or thereabouts. I couldn't say precisely what period that began.

X Q. 66. Well, it is a fact, is it not, that from the years 1930 to say the middle of 1933 there was a course of general depression and reduction in volume of business of all kinds all over the country?

A. That is the reason I have stated that I thought that change that I referred to applied more particularly along in 1932. We had then felt the principal effect of the depressed demand.

[fol. 154] X Q. 69. And that falling off of sales that year, that was due, so far as you know, as much to the general depression as it was to sales by competitors, wasn't it?

A. Which year is that?

X Q. 70. 1931, 1932.

A. In 1932 I think that the reduction was due in part to the activities of our competitors in the sale of paper spot crowns.

X Q. 71. Who were your competitors in 1932?

A. The defendant is one, Armstrong Cork Company, Mondette Cork Corporation, William H. Hutchison & Son, Bamberger & Kraus, Bond Manufacturing Company. I think that is illustrated, I do not think that I could name them all.

X Q. 72. In this license agreement referred to in your pleadings in this case and in answer to our interrogatories, you gave, as I recall it, fifteen concerns who had signed this license agreement.

A. I think there were approximately that many, yes.

X Q. 73. They were all competitors of yours prior to the signing of that license agreement, is that right?

A. Prior to the signing of the agreement?

X Q. 74. Yes.

A. Yes.

X Q. 75. How about after signing that agreement, what happened to the sales then, did they increase or decrease?

A. The year 1934, according to this statement, shows a decrease as compared with 1933. The sales of paper spot

crowns, according to our analysis, has fallen since the legalization of beer since our experience has been that there has been a smaller sale of ginger ale, particularly the ginger ales that used a paper spot crown.

X Q. 76. And of course composition cork is cheaper than natural cork, isn't it?

A. It is.

[fol. 155] X Q. 77. And a composition cork crown with a center spot of either foil or glazed paper would be cheaper than a natural cork crown, would it not?

A. It would.

X Q. 78. Quite appreciably cheaper?

A. Depending, of course, on the grade of natural cork. You can get natural cork so poor that, as the expression goes, it will just about keep flies out of bottles.

X Q. 79. You are referring of course to a natural cork of a quality suitable for bottling?

A. Yes.

X Q. 80. But even with the cheapest grade of suitable natural cork, a composition cork with a center spot is cheaper than natural cork would be, wouldn't it?

A. Well, of course the word "suitable" covers a rather broad area.

X Q. 81. Such as you use in the trade for capping purposes.

A. What we would sell as our standard natural cork would be more expensive than a paper spot crown or an aluminum spot crown.

X Q. 82. That is, to make the record perfectly clear, put on a composition cork disc, is that right?

A. Yes, aluminum spots or paper spots applied to composition cork discs, yes.

X Q. 83. Now, you spoke of the sale or transaction you had with the Anheuser-Busch Company in 1928 in which you lost considerable money and had to put center spots on.

A. Yes.

X Q. 84. Is it not a fact that the natural cork used on those Anheuser-Busch crowns was mouldy and in a bad condition?

A. My recollection of that transaction was not that the discs were mouldy but on the contrary that certain of the discs imparted a taste to the beverage. That is a condition that seems inherent in natural cork and one that has been

[fol. 156] diagnosed in various ways but nobody seems to have been able to determine just what causes it.

X Q. 85. Would that apply to the best grade of natural cork, is there a taste to the cork?

A. Irrespective of grade. Mind you, in the manufacture of natural cork discs you will produce a certain number of high grade discs and a certain number of low grade discs out of the same sheet of wood so if the low grade imparted a taste also would the high grade.

X Q. 86. Is that Anheuser-Busch the only one you have had any trouble with?

A. No, we had trouble with any number of customers, the Manitow Mineral Spring Company, the John Graff Company and I mentioned yesterday the Gosman Ginger Ale Company and I think the Fox Head Springs Company. I cannot recall them all because I do not handle the complaints, so I do not know specifically any great number.

X Q. 87. These various instances you have just referred to, all those have been before 1926 or subsequent to 1926?

A. Those conditions that I am speaking of happened in the case of Anheuser-Busch—I think it was in the year 1926. In the case of the Gosman Ginger Ale Company—I don't recall exactly what year that was, but I think it was in the year 1924. There has been a continuous source of I might say argument between the customer and ourselves as the supplier over the question of the quality of natural cork discs throughout the entire period that I have been with the company.

X Q. 88. And that would be running back as far as 1903, I think you said yesterday.

A. Yes, that is correct.

[fol. 157] X Q. 89. And you have always had that trouble with the quality of cork?

A. We have had troubles of one kind or another.

X Q. 90. Due to imperfections in the cork?

A. Due to imperfections in the cork and the fact that the cork imparts a corky taste at times and due to the brittleness of the cork which causes leakage upon application of the crown to the bottle and also the flaking out of cork dust from natural holes in the cork and also what is known — pin-hole trouble.

X Q. 91. Now, what effect did the advent of prohibition have upon the crown cork industry?

A. I don't know whether I quite get what you mean.

X Q. 92. Well, did it affect the sales in any way when prohibition went into effect in 1920?

A. The principal effect it had on the crown cork industry was to largely eliminate what was known as the sale of home brew crowns.

X Q. 93. Just what do you call home brew crown?

A. Crown that was sold for the purpose of brewing in the home, home use.

X Q. 94. Would that have a center spot or not?

A. It would not.

X Q. 95. Was that made of composition or natural cork?

A. That was made of natural cork.

X Q. 96. Isn't it a fact that there are a great many crown caps sold with composition cork, both for beer and various soft drink beverages that have no center spot?

A. There are a great many crowns that are used——

X Q. 97. Composition cork crowns I am referring to.

A. There are a great many composition cork crowns that are sold for beverages that have no spots on them, that is correct.

X Q. 98. And is it the fact that it is only necessary to [fol. 158] put a spot on when a beverage is to be kept for some appreciable length of time, such as for storage or export?

A. The matter, of necessity, I would say would depend more upon the particular kind of beverage and the characteristics of that beverage. When we sell crowns of course we do not know what is going to be the particular characteristic of the drink that it is going to require to seal. You take, for example, Coca-Cola; as far as I know the Coca-Cola crowns do not use spots. But Coca-Cola, unlike any other drink, is sold in an exclusive area, for example, New York City. Coca-Cola here is the only company that can bottle Coca-Cola, and they do not ship it outside of their particular franchise area, which means it requires but a very short seal.

X Q. 99. How about cheaper grades of sarsaparilla and soda water, aren't there a great many of those sold using, aren't there a great many crowns sold for that purpose made of composition cork without a center spot?

A. They are practically all of what they call short hold drinks, they are consumed within a very short time after sealing.

XQ. 100. Have you any idea of the approximate number or gross a year that would be used in the trade for such purposes as that?

A. You are speaking of the industry?

XQ. 101. Well, yes, the whole industry.

A. I do not have any figures pertaining to the industry.

XQ. 102. Take your own company, for instance.

A. I submitted it as one of the exhibits yesterday.

XQ. 103. You may take all the exhibits. Will you just keep all of those in your hand until we get through and it [fol. 159] will save running back and forth.

Can you tell from those?

A. Exhibit 29 carries a record of the plaintiff's sales of soft drink crowns in the years 1928 to 1934, both inclusive. This figure includes the sale of glazed paper spot crowns which, however, are shown in a separate column. It shows that commencing with the year 1928, when we introduced the glazed paper spot crown, there were less than one per cent of such crowns sold, and that by 1932 it had increased to ten per cent of the total sales of soft drink crowns, and in 1934 was six and a half per cent of the total sales of soft drink crowns.

XQ. 104. I notice, referring you to this Exhibit 29, that in 1933 you sold one million four hundred and some thousand of glazed paper spots, and the same year you have there soft drink, 17,148,000 gross, whereas in 1934 you have glazed paper spots, 1,027,507 and soft drink, 15,809,000. How do you account for the falling off of 4,000,000 gross of glazed paper spots there?

A. 4,000,000?

XQ. 105. No, 400,000, I beg your pardon, and practically 2,000,000 in the soft drink column.

A. Based upon the percentage of sales of glazed paper spot crowns to the total soft drink crowns it indicates that the percentage of sales by us of glazed paper spot crowns was less than in the year 1933. We attribute that largely to the fact that with the repeal of the Eighteenth Amendment the sale of high grade ginger ales fell off, at least, our sales to such companies fell off.

XQ. 106. That would apply to all soft drinks, wouldn't it?

A. I wouldn't say so, no, because the so-called soft drinks, exclusive of ginger ale are largely what we term

[fol. 160] sweet drinks, and the average sweet drink consumer is not as a rule a beer drinker.

X Q. 107. I notice in 1928 you have under your soft drink heading 28,000,000 gross and some hundred thousand as against only 15,000,000 in 1934. That is a falling off of almost 50 per cent. What do you attribute that to?

A. As between 1928 and 1934, the major portion of that reduction would be due to economic conditions, in my opinion.

X Q. 108. It is impossible for you to say how much was due to economic conditions and how much to business carried on by your competitors, isn't it?

A. I have no figures to show the precise amount of business done by our competitors.

X Q. 109. Coming back for a moment to the natural cork business again, did the war have any effect on the supply or cost of natural cork?

A. I do not recall any actual costs of discs, natural cork discs, during the time of the war. I do distinctly recall that we were able to import all the natural cork discs that we wanted. In fact, we chartered our own vessels, we brought over to Baltimore the largest cargo and paid the largest duty that was ever paid at the Port of Baltimore, something in the neighborhood of $98,000 duty on one consignment of natural cork discs.

X Q. 110. Well, just put a date on that approximately, if you remember. Just add to that answer the date of that shipment, will you?

A. I don't recall the exact time when that occurred. It was probably in—I am only trying to recall this—possibly 1916 or thereabouts.

X Q. 111. Well, you say you had no difficulty in getting [fol. 161] cork from abroad. Isn't it a fact that during the war it was not possible to ship the cork as freely as it had been prior to that and that a lot of cork was stored on the other side and became mouldy or bad?

A. We have our own disc manufacturing plants in Spain and Portugal and we did not store any unusual quantities of cork during those periods.

X Q. 112. Didn't the Crown Cork & Seal Company have to close up practically 100 or 101 or 102 of its branches along about 1924 or '25 or '21?

A. When you say, didn't they have to, I do not get exactly what you mean.

X Q. 113. Well, didn't they as a matter of fact close up 101 branches?

A. There was a time when we had something like 104 branches throughout the country. The policy insisted upon by our then president and never concurred in by the majority of the management of the rest of the organization, of which I was one, was the cause of that. It was on our recommendation in the year 1921, when we had a depression, that we closed the majority of our branches.

X Q. 114. That would be in the neighborhood of 100 branches?

A. That we closed?

X Q. 115. Yes.

A. No, we cut them down at that time to about 26. They were distributing depots, not manufacturing branches.

X Q. 116. Well, didn't you sell your cork plant or factory or whatever you call it in Portugal and Spain?

A. As the result of a trip that I made to Spain and Portugal in 1925 we consolidated our operations in Seville instead of operating both in Spain and in Portugal. Since the formation of the plaintiff company there was another corporation formed, known as the Crown Cork Interna-[fol. 162] tional Corporation which took over these foreign plants. They are still owned and operated by the Crown Cork International Corporation. In fact they have more natural cork disc plants over there now than we had in former times. These are for the purpose of taking care of their various foreign affiliations.

X Q. 117. Well, isn't it a fact that somewhere we will say between 1920 and 1924 that the Crown Cork & Seal's statement to its stockholders showed a loss of upwards of five million dollars in crown corks?

A. Throughout the period between '20 and '24 or '25 we sustained very heavy losses.

X Q. 118. Due to what principally?

A. It would be difficult for me to answer that question without having an analysis of what those losses really consisted of. I do not have those, of course, in my mind.

X Q. 119. Well, wasn't one of the main reasons the fact that composition cork came into the market then?

A. That was not the cause of the losses because we were manufacturing composition cork long before that, and

manufacturing in large quantities and that end of our business was always a profitable end of the business.

X Q. 120. When did you first begin to manufacture composition cork—I mean by you the Crown Cork & Seal Company?

A. As best that I can recall somewhere about 1906 or 1907, maybe a little faster than that. I have just got to guess at that.

X Q. 121. Just to fix your date, isn't it a fact that a patent was taken out about 1911 by a man named Jones for composition cork?

[fol. 163] Mr. Darby: Your Honor, we object to that. This witness has not testified with reference to any patents.

Mr. Warland: I am just trying to fix the date, your Honor.

The Court: All right, if you are just trying to fix the date.

A. I do not know of any patent taken out by a man by the name of Jones, there may have been.

X Q. 122. Well, if you began the manufacture of composition cork discs in, say, 1907, wasn't the need of a center spot apparent at that time?

A. In 1907, please remember I had only been with the company four years. I was but a clerk and I did not know what the requirement was.

X Q. 123. Well, take 1912 as an illustration. At that time the Crown Cork & Seal Company was making and selling discs of composition cork, was it not?

A. They were.

X Q. 124. And in very considerable quantities?

A. Yes.

X Q. 125. Well, wasn't the need of a center spot apparent at that time?

A. There has always been a need for crowns that would replace effectively natural cork disc crowns and something that would serve the high grade beverages. Whether that would be a center spot crown, or whatever it might be. The center spot is what was ultimately developed to meet that need.

X Q. 126. It was developed because it was cheaper than natural cork, wasn't it?

A. Not because it was cheaper but because it was more efficient for the purposes for which it was designed to fill.

[fol. 164] X Q. 127. Do you say as a general proposition

that a center spot crown was more efficient than a natural cork crown?

A. Yes.

X Q. 128. Referring to Exhibit 33, I notice you have a tabulation there of aluminum spots, tin spots and glazed paper spots, and the first year you have given is 1923 for tin spots, and in 1924 and 1925, there were no- either aluminum or glazed paper spots. Is 1923 the first year that you used center spots of any kind?

A. No, 1923 was as far back as we had any records available for the preparation of this statement.

X Q. 129. But you had used them quite a number of years prior to that?

A. My recollection is that we used tin-foil spot corks somewhere along about 1917 or 1918.

X Q. 130. That is merely your recollection without being refreshed from any records? I mean, you are testifying from your recollection only, is that right?

A. I looked up records to ascertain that for the purpose of answering certain of your interrogatories.

X Q. 131. Now, I believe you said a few moments ago that there was never any suitable paper center spot until the Warth patents came on the market; that is correct, isn't it?

A. That is my understanding.

X Q. 132. And you never heard of any other patent or any other manufacturer of center spot crowns making paper center spots?

A. We didn't find them on the market.

X Q. 133. Did you ever use parchment as a center spot?

A. Not as I know of.

X Q. 134. Do you recall making some affidavits in the prosecution of these two applications for patents on center spot crowns?

A. I perhaps did.

[fol. 165] X Q. 135. You were aware of the patent situation at the time you made those affidavits?

A. I do not know what patent situation you refer to.

X Q. 136. Well, the patent situation——

Mr. Darby: Show him what you are talking about, show him the affidavit.

X Q. 137. All right. I show you an affidavit dated December 31, 1932, which appears in the certified copy of the

file history of application for patent No. 1,899,783, and ask you if that is a photostat copy of your signature?

A. I would say that it is.

X Q. 138. What about the patent to McManus, did you ever hear of that patent which was testified to here yesterday by Mr. Weisenburg?

A. Yes, I have heard of it.

X Q. 139. Is that suitable for center spots?

A. It is my understanding that it was never——

Mr. Darby: Your Honor, we object to the question as to the suitability of the patent. This witness has not qualified as a patent expert or shown any knowledge along that line. If opposing counsel wishes to make the witness his own we have no objection.

The Court: What was the question?

(Last answer repeated by the reporter.)

The Court: He hasn't qualified as an expert on patents, whether it is suitable or not.

Mr. Warland: I am not asking him——

The Court: You did ask him if they were suitable.

[fol. 166] Mr. Warland: Well, I mean as a manufacturer, not as an expert on patents.

The Court: I do not know that he knows anything about it; he hasn't shown it. He has been here as a business man. I haven't heard him talk about manufacturing; I heard him talk about business, about the volume of business, and so forth. This is more of an office man's job than a manufacturer.

X Q. 140. As I understand your testimony yesterday and today, this Warth patent is the only one that is suitable——

Mr. Darby: No——

X Q. (Continuing.) —that the glazed paper spot crowns is the only one suitable for capping ginger ale, is that right, for center spots?

A. I do not understand that question.

Mr. Darby: I object to it.

(Last question repeated by the reporter.)

The Court: You asked him if it is the only one that is suitable. You can ask him if it is the only one they use, or some-

thing like that, but he is not a patent expert; how does he know whether they are suitable or not? He hasn't qualified. Perhaps he may know enough of the structure that they manufacture to tell you, I do not know whether he knows that or not.

Do you have anything to do with manufacturing at all?

The Witness: No, I have nothing to do with manufacturing.

[fol. 167] The Court: You were an office man, were you?

The Witness: Yes, sir.

The Court: You were working looking after the financing, and things of that character?

The Witness: General corporate matters and matters of that sort.

X Q. 141. But so far as you know the only kind of paper spots which the plaintiff put out was that made of glazed hard paper varnished and coated with gutta percha?

A. I think I testified yesterday that we were manufacturing a glazed paper spot using what is known as express paper and also what is known as bleached kraft paper, both of them having varnished coatings.

X Q. 142. The list that you put in here showing the sales of metal foil spots and also of glazed paper spots, why did you use metal foil spots in some cases and paper spots in another?

A. On the recommendation of our laboratories as to which is the most suitable for the different purposes.

X Q. 143. Well, which is cheaper, the metal foil or the glazed paper?

A. That would depend—do you mean the selling price?

X Q. 144. Yes, the selling price.

A. The selling price today of glazed paper and aluminum spot I think is within about one-half a cent per gross of each other.

X Q. 145. Which is the most expensive, aluminum or a center spot of paper?

A. The aluminum. My recollection is—I think the aluminum is a half a cent cheaper, but I am not sure of that. I [fol. 168] have nothing to do with sales prices because I do not use them in the sense of ever having occasion to quote them.

X Q. 146. Now, isn't it a fact that you used glazed paper spots on crowns which are to be used for bottling carbonated waters and acidulated waters and things of this sort?

A. Generally speaking we recommend tin-foil for waters, aluminum for cereal beverages, and paper for the so-called acidulous drinks.

X Q. 147. You know in your position what kind of caps are suitable for sale to the trade, don't you?

A. In a general way, yes. The question of suitability of a product for any specific drink is something that is always taken up with our laboratories and we act upon their recommendation.

X Q. 148. Well, after the laboratory has recommended a certain type to you, aren't you qualified to know or don't you know whether it is suitable for the trade or not?

A. I attempted to answer that a moment ago by saying that generally speaking we recommend tinfoil for waters, aluminum for cereal beverages, and paper for acidulous drinks. Now, there may be certain individual cases where a condition existed that our laboratories would recommend something else, which I would not know about, but the sales department would.

X Q. 149. Do you have anything to do with the sales department?

A. Nothing.

X Q. 150. Now, this affidavit that I showed you a moment ago in the file of application for patent No. 783, how did you come to make that?

A. How did I come to make that affidavit?

X Q. 151. Or why did you make it?

[fol. 169] A. That affidavit was made in connection with —may I be allowed to see it just a moment?

X Q. 152. Surely.

A. This affidavit was made in connection with the request of our counsel for information to be used in this interference.

X Q. 153. You said interference; I believe it is just for use in the application.

A. Oh, I see.

X Q. 154. He got you to make it because you had knowledge of the fact of what was on the market and what was done by other manufacturers, didn't he?

A. They had me make it as an officer of the company. Before executing any affidavit I satisfied myself as to the correctness of the statements by information which I am

able to obtain from various members of the organization and what personal knowledge I have of the subject.

X Q. 155. And you stated in that affidavit that prior to 1925 the only kind of center spots on the market were made of metal foil, didn't you?

Mr. Darby: Please let the witness read the affidavit, Mr. Warland.

X Q. 156. Sure, read it.

A. Yes, sir.

X Q. 157. Have you read it?

A. Yes, sir.

X Q. 158. You stated in that affidavit, did you not, that prior to 1925 the only center spots that were made were of metal foil?

A. To the best of my knowledge and belief, yes.

X Q. 159. What about 1928, the manufacture of paper spots in 1928? You refer to that in your affidavit?

A. Yes.

X Q. 160. Say you first began to sell them?

A. Yes.

X Q. 161. You sold them in 1927, didn't you?

A. Experimental sales.

[fol.170] X Q. 162. Whom did you sell those to?

A. Burroughs Brothers and McCumber Orchard Company.

X Q. 163. When were those sold to Burroughs Brothers and McCumber Orchard Company?

A. My recollection is that a sample order was shipped to Burroughs Brothers approximately in May, I think it was.

X Q. 164. 1927?

A. 1927, and to McCumber Orchard I think in September, 1927.

X Q. 165. And they all paid for those caps?

A. They were paid for.

Mr. Warland: I think that is all. I would like to mark this File Wrapper for identification.

The Court: All right.

(Marked Defendant's Exhibit A for identification.)

Redirect examination.

By Mr. Darby:

R. D. Q. 166. Just to get the record straight, Mr. Fusting, you were asked some questions about the advent of the so-called home-use crown for the home bottling of beer, which occurred during Prohibition, and I believe you were asked the question whether those crowns contained composition cork or natural cork; what is the correct answer to that?

A. Composition cork; the sales for home use always required the cheapest possible crown that they could buy.

R. D. Q. 167. You have been asked some questions about this affidavit which you made in the filing of Warth patent No. 1,899,783, and I wish to read you one sentence from that [fol. 171] affidavit which reads, "The increase in sale"——

Mr. Warland: Just a moment. I object to that unless the affidavit is in. He says it is all true, and of course it is true.

Mr. Darby: The affidavit is in.

Mr. Warland: I will offer it in evidence if I may now.

Mr. Darby: I just wish the witness to testify to one point.

The Court: All right. If you want it in evidence, all right.

Mr. Darby: "The increase in sale"——

The Court: Is it in evidence?

Mr. Warland: I will offer it in evidence.

The Court: All right.

(Defendant's Exhibit A for identification marked in evidence.)

R. D. Q. 168. And this statement reads, "The increase in sale from less than 100,000 gross in 1928 to over 2,000,000 gross in 1930 was accomplished virtually without advertising and I can find no record of any advertising expense with reference to the paper spot crown other than one or two simple announcements in trade journals that the company was making at this price. In practically every instance there was no particular effort made to sell the paper spot crown. The same was merely submitted to companies such as Canada Dry and the Cliquot Club Company. After months of test, these companies adopted the new product of their own volition in preference to the crown they had previously [fol. 172] used." Is that statement correct?

A. That is correct.

R. D. Q. 169. And the crown they had previously used was the natural cork disc crown?

A. The natural cork disc crown.

Mr. Darby: That is all.

Recross-examination.

By Mr. Warland:

R. X Q. 170. Why did the companies use those composition crowns; that was to save money, wasn't it?

A. Which companies?

R. X Q. 171. The ones just referred to in your answer to Mr. Darby's question. With reference to the home brewers and people of that type, they bought composition cork crowns to save money?

A. It was the cheapest composition crown that could be made.

Mr. Warland: That is all.

(Witness excused.)

Mr. Scull: Plaintiff rests, your Honor.

Mr. Warland: I now offer in evidence, if your Honor pleases, certified copy of the File Wrapper of Application of John Alberti for patent No. 1,199,026, dated September 9, 1916.

(Marked Defendant's Exhibit B in evidence.)

[fol. 173] ARTHUR F. ROHRMAN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. Where are you employed, Mr. Rohrman?

A. The United States Patent Office.

Q. 2. And you have charge of the records down there, file wrappers and so forth?

A. Have charge of them?

Q. 3. Well, what are your duties down there?

A. I have charge of the interference records, yes.

Q. 4. Do you have any custody of the other documents of the Patent Office?

A. Yes.

Q. 5. I asked you to produce, in accordance with an order of this Court, the original File Wrapper of the Alberti patent and also the original file of the patent to McManus No. 1,339,066.

A. Yes.

Q. 6. And have you produced those two documents?

A. I have, yes.

Q. 7. Are there attached to those two files any exhibits of any kind?

A. There are.

Q. 8. Will you please show them to the Court?

A. This is the Alberti file.

Q. 9. Were those attached to the affidavit filed under provisions of Rule 75?

A. They were filed under provisions of Rule 75, yes, sir.

Mr. Warland: Your Honor, these are caps which are attached to the affidavit (indicating and handing caps to the Court).

The Court: All right. I have seen them, sir, what are you going to do about them?

[fol. 174] Mr. Warland: I cannot offer those in evidence if your Honor pleases, but I simply produced this witness without any attempt at argument at this time to have your Honor compare those caps with the caps which we are accused of infringing.

The Court: I have looked at them.

Q. 10. Now, will you please look at the file of the application for the McManus patent 1,339,066 and see if there are any exhibits attached to that?

A. Yes, sir (producing caps).

Mr. Warland: And I ask you Honor to look at these.

The Court: Very well.

Mr. Warland: That is all.

JOHN ALBERTI called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

The Court: Mr. Warland, those are not in evidence, they will never be any part of the record.

Mr. Warland: I can't get them in the record, I simply wanted to call them to your Honor's attention to show the comparison between those which we are making and the ones that we are alleged to infringe. That is our defense, 95 per cent. of ours are made in accordance with this.

The Court: You have got the patent in evidence, haven't you?

[fol. 175] Mr. Warland: Yes.

The Court: They wouldn't go up to the Circuit Court of Appeals.

Mr. Warland: The only way I can get them up there would be to have this witness go to the Circuit Court of Appeals if the case should go there. I do not know how else to handle the situation. Suppose, for the sake of the record, I offer them in evidence, would your Honor have them marked in evidence for identification so that they may be identified at a higher court?

The Court: I do not know; that is up to you.

Mr. Warland: I am offering them now.

The Court: You can substitute a photostat of the affidavit.

Mr. Warland: I have a certified copy.

The Court: If you have the File Wrapper and contents it will go in anyway.

These may be deemed marked in evidence, they cannot be marked, as they are public records, but they may be deemed.

(Deemed marked Defendant's Exhibit C in evidence.)

Mr. Warland: Now, I also offer in evidence the three caps attached to the McManus affidavit made under Rule 75.

The Court: That is received, but they cannot be marked because they are public records and they will remain in the custody of the Patent Office.

(Deemed marked Defendant's Exhibit D in evidence.)

[fol. 176] Q. 1. Mr. Alberti, you are the John Alberti mentioned in this original application for patent, are you not?

A. Yes.

Q. 2. I show you an affidavit made under the provisions of Rule 75, dated the 6th day of December, 1915, and ask you if that is your signature to that affidavit?

A. Yes, that is my signature.

Q. 3. And these three caps which have been produced by the Custodian of the Patent Office, are those the caps that were attached to that affidavit and filed with your application, being Defendant's Exhibit C here?

A. Yes.

Q. 4. There was another affidavit attached to that file made by Mr. Melchor Marsa; do you know where Mr. Marsa is now?

A. I believe he is here.

Q. 5. He is in this country?

A. In this country, yes.

Q. 6. Do you know whereabouts?

A. He is stopping at the Hotel McAlpin.

Q. 7. What business are you in now, Mr. Alberti?

A. Manufacturing bottle caps.

Q. 8. How long have you been connected with the business of manufacturing bottle caps?

A. Oh, about thirty years.

Q. 9. Where were you in the years 1911, 1912 and 1913?

A. I was an officer of the International Cork Company.

Q. 10. And you were making what at that time?

A. We were making corks, ordinary bottle corks and bottle caps of the type known as crown corks.

Q. 11. Were you making center spots at that time such as typified by that Exhibit C, the three caps I have just shown you?

A. No.

[fol. 177] Q. 12. When did you first make a center spot like that, when did you first make the center spot like that shown in those samples attached to the affidavit?

A. The caps referred to in that patent?

Q. 13. Yes, in that affidavit, the ones I just showed you?

A. In the early part of 1914.

Q. 14. How early in 1914?

A. Well, I haven't been able to fix the exact date; sometime in the spring.

Q. 15. I show you a patent to E. and J. Alberti No. 1,401,300, filed June 19, 1916, which is entitled, "A machine for manufacturing closers for bottles and other receptacles." It was taken out by E. and J. Alberti. Are you the J. Alberti mentioned in that patent?

A. Yes, I am.

Q. 16. That machine was for making center spots like that shown in Figs. 14 and 15, was it not?

A. Yes.

Q. 17. Are you sure that you did not make these caps like those attached to your affidavit which have just been shown to you, some time in 1913?

A. I am reasonably sure of that, yes.

Q. 18. Have you any data on the matter at all to refresh your recollection?

A. No, I haven't.

Q. 19. Now, at that time, were there center spots on the market that you knew of?

A. There was only one kind that I can recall.

Q. 20. And that was what?

A. That was the kind made by the United Cork & Seal at Millis, Massachusetts.

Q. 21. Do you mean like the cap marked, "White Rock," which is Plaintiff's Exhibit 20?

A. Yes, that looks like the kind.

Q. 22. I show you another one where the cap is cut half way through the top (handing to witness).

A. Yes, I think that is the kind.

[fol. 178] Q. 23. Your company, the International Cork Company brought a suit against the New Process Cork Company, didn't it?

A. Yes, but not about any metal center spots.

Q. 24. They brought a suit about caps, having nothing to do with center spots?

A. That is right.

Q. 25. And afterwards that suit was settled in some way, was it not, by the New Process Cork Company buying out the International Cork Company?

A. The suit was not settled.

Q. 26. After the suit was tried?

A. After the suit was tried, after the case was decided against them it just happened that we entered into negotiations and they bought our company, our crown business.

Q. 27. Did they buy out this patent which you have just testified about?

A. Yes, sir, all of the patents that the company owned that related to crown corks or their manufacture.

Q. 28. And about what time was that sale made to the New Process Cork Company?

A. In 1925. November 1st, I think, was the actual date, but the deal was consummated some time in July.

Q. 29. Have you any knowledge of the various center spot caps made by other manufacturers?

A. You mean today?

Q. 30. Well, let us say along in 1913, '14, '15 and '16.

A. Well, I do not remember any successful ones at that time excepting the one that I mentioned. There were other attempts made.

Q. 31. Who made the attempts?

A. Well, we made an attempt—the International Cork Company, and the New Process Cork Company had some patent relating to center spots and then there was the American Cork & Seal, or some such name, located in Philadelphia.

[fol. 179] Q. 32. Do you know whether any center spot caps made of parchment paper were ever sold by the New Process Company or anybody else?

A. No, I do not.

Q. 33. And you were in a position to know of sales by other manufacturers in the center spot industry, were you not?

A. Yes, I think we were in an adequate position to know.

Q. 34. When did you take up the manufacture of these center spot crowns made in accordance with this patent and like those which I have just shown you, attached to your application?

A. We never really did manufacture them for production you see.

Q. 35. Do you recall calling at my office some day this Spring in company with Mr. Gutmann?

A. Yes.

Q. 36. Do you remember that we asked you about the dates when you first made this cap?

A. Yes.

Q. 37. And do you remember telling us that you made an affidavit for Mr. McManus within the last year?

A. Yes.

Q. 38. And could not tell us anything about the caps for that reason?

A. No, I did not say that.

Q. 39. What did you say?

A. I told you that previous to your visit—that is the visit to you—I had made an affidavit to the Crown Cork about the same matter.

Q. 40. And have you a copy of that affidavit?

A. No.

Mr. Warland: Will you produce that affidavit, Mr. Scull I subpœnaed it.

The Witness: I never did have a copy of it.

[fol. 180] Q. 41. Is this the affidavit you made for the Crown Cork & Seal Company?

A. Yes.

Mr. Warland: I offer that in evidence.

The Court: Is there any objection to that?

Mr. Scull: None.

(Marked Defendant's Exhibit E in evidence.)

Q. 42. Was a suit pending against the International Cork Company brought by the Crown Cork & Seal Company for infringement of certain patents sometime in 1913 or 1914?

A. Yes, I think so.

Q. 43. And you had to change your machines, didn't you, to obviate the outcome of that suit?

A. Oh, that was much earlier we changed our machines.

Q. 44. Weren't you busy making changes around 1913 and 1914?

A. Yes, particularly 1913, I think.

Mr. Warland: I think that is all.

Cross-examination.

By Mr. Scull:

X Q. 45. Mr. Alberti, what is the structure of those spot crowns which are in Exhibit C? In the first place, what is the foil, what metal?

A. Exhibit C, is that the ones we submitted to the Patent Office?

X Q. 46. Yes.

A. What was the spot material?

X Q. 47. What kind of foil is that?

A. That is tin-foil.

X Q. 48. How is it fastened to the cork?

A. By the use of albumen as an adhesive.

[fol. 181] X Q. 49. Well, albumen is not heat-fusible?

A. No, it is hardened by heat, just the reverse.

X Q. 50. And those particular samples were made how, on a machine or by hand?

A. Partially by hand, I think, and partially by machine; I can't recall the exact circumstances under which they were made.

X Q. 51. When you first made bottle caps, and you think possibly that was in 1914, at that time you had no machine for making these?

A. No.

X. Q. 52. Well, when you say partly by machine and partly by hand, you mean that the crowns themselves, that is to say, the shell with the cork disc in it, was made, by machine, and then you pasted on the spot by hand?

A. Well, I mean I can't recall whether—we probably adapted one of our machines that was uesd for assembling crowns just for making these samples or other samples of that kind.

X Q. 53. Did you ever try any other adhesive for spot crowns than this albumen?

A. No.

X Q. 54. My understanding is that when that is put on it is wet?

A. Yes.

X Q. 55. I think you said that you never did really manufacture these spot crowns; that is correct, is it?

A. That is what I said, yes.

X Q. 56. What did you do after you had made these samples of which Exhibit C is representative, so far as manufacturing is concerned? Were any steps taken looking to the manufacturing?

A. At our convenience we attempted to make them commercially.

X Q. 57. What did you do, how did you go about that?

A. We made, oh, we made one or two other types of machines before the one illustrated in that patent was made.

[fol. 182] X Q. 58. And by that patent you mean the machine, a picture of which I show you——

A. The one applied for in 1916.

X Q. 59. Such as shown in patent No. 1,401,300?

A. That is the one that my brother applied for, my brother and I?

X Q. 60. That is the E. and J. Alberti?

A. Yes, that is the one.

X Q. 61. Now, will you tell us?

A. We made experiments from time to time and when we could not get the results we were after we tried something else until we got to the machine mentioned in this patent. That was the best one made for that purpose but even that did not produce commercially successful crowns, so we abandoned the idea.

X Q. 62. What were the difficulties that you experienced with it?

A. The main difficulty was we could not get a clean crown, a clean center. The glue would, if we did not put enough glue on then we had trouble about the discs—the metal disc coiling and sometimes bending over due to friction with each cap. Then, our greatest difficulty was when we put too much adhesive in there, there would form, as the pressure was applied for the hardening, little bubbles would form at the edge of these centers and there would be too many of those and we would have to reject them.

X Q. 63. My understanding from your patent 1,401,300 is that what you were attempting there was to have some kind of a dropper which would drop the albumen adhesive in solution on a disc and then some kind of a dauber would pick it up from there and put it on the crowns, is that right?

A. No, I think the way the machine operated was this; [fol. 183] we applied a drop of adhesive to a pad, a felt pad and then we picked up part of that adhesive by means of a punch, just as you would on a rubber stamp pad, and then apply that to the cork disc. That was done in an effort to overcome this difficulty of applying too much adhesive.

X Q. 64. And these earlier machines, I assume, what you tried to do was drop the adhesive directly on the cork?

A. Yes.

X Q. 65. And that you found to be a failure?

A. Yes.

X Q. 66. And you also found this means of picking it up with a punch to be a failure?

A. Even through that method we could not avoid this difficulty and if the center is not absolutely clean it does not make a commercial article.

X Q. 67. Did you try paper?

A. No, we never attempted paper. At that time I do not believe paper was in use anywhere. I do not believe that kind of paper, used today, was invented then.

X Q. 68. Now, did you turn to another form of cap to get the effect of a center spot?

A. Yes, we tried one. It was made by first placing a tin metal disc on the tin shell or cap and then placing over that a ring or washer made of cork.

X Q. 69. In other words you departed from the accepted and established form of a shell with a cork disc in it?

A. Yes.

X Q. 70. So you tried something else along different lines?

A. Yes.

X Q. 71. Was that successful?

A. No, and that was very expensive, too.

X Q. 72. How much do you suppose you spent altogether [fol. 184] on your experiments trying to get a spot crown?

A. Well, probably five or ten thousand dollars, I really don't know though.

X Q. 73. Over how long a period were you trying it?

A. About two years or so—two or three years.

X Q. 74. And is it fair to say that the problems in these spots—spot crowns—so far as your experience with it went was to put a spot on accurately and cleanly and at a high speed, is that right?

A. High speed and low cost.

X Q. 75. High speed and low cost are the same thing, aren't they?

A. Yes.

X Q. 76. In other words, in this particular business it is essential that you get high speed?

A. Because it is an article sold at a very low price, it is a volume article.

X Q. 77. Were you directly in charge of this experimentation or did somebody else take care of it for you?

A. I was always in touch but I did not do the actual experimenting most of the time.

X Q. 78. Who did it?

A. It was in charge of my older brother and Mr. Marsa and if it was a mechanical experiment it was under the man in charge of the machine shop at the time, either Mr. Nagy or Mr. Bogdamffy or whoever happened to be in charge during that period.

Mr. Scull: That is all.

Redirect examination.

By Mr. Warland:

R. D. Q. 79. Just a moment. I understand you to say you did make some crowns like that shown in your patent; that is true, isn't it?

A. Yes.

R. D. Q. 80. Quite a material number?

A. No.

[fol. 185] R. D. Q. 81. The only trouble, you didn't make—the only reason you didn't make a very large number is because you didn't have proper equipment or proper machines, is that right?

A. Well, I wouldn't say that. This machine never left our experimental department; it was never placed on the floor for production, you see.

R. D. Q. 82. But you could have made them if you had had a proper machine?

A. We could submit samples, fairly large quantities of samples, but we had to reject quite a few to do that. It is a question whether we could have produced them on a large basis——

R. D. Q. 83. It came down——

A. We never got any orders so I can't say that.

R. D. Q. 84. It came down to a proposition that the method of manufacture you had was too expensive to make it commercially feasible, is that right?

A. Yes, yes, that is right.

R. D. Q. 85. You mentioned Mr. Bogdamffy a moment ago; he was employed by you, I mean in 1911, 1912, 1913 and 1914?

A. Yes, he left us about that time.

Recross-examination.

By Mr. Scull:

R. X Q. 86. Mr. Alberti, did you ever send out any of these spot crowns for test by any customers?

A. Oh, yes.

R. X Q. 87. What were the results?

A. Well, I do not believe we got any real good technical reports, we just didn't get any business.

R. X Q. 88. By the way, in your experience with these crowns, what is the fact so far as tests are concerned, does it take a short time, a long time, or what is the procedure?

[fol. 186] A. Ordinarily in bottled beverages it takes quite some time to get results.

R. X Q. 89. It was the custom in the trade, then, to put the caps on and then subject them to a time test?

A. Yes.

R. X Q. 90. Before they determined whether or not they were satisfied?

A. Yes. The custom is the bottlers are very slow to change.

Alexander Bogdamffy, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business now, Mr. Bogdamffy?

A. I am engaged now in building homes.

Q. 2. Were you ever engaged in the crown cap business?

A. I was.

Q. 3. I show you three patents numbers 1,053,898, 1,169,608 and 1,053,565, and ask you if you are the Mr. Bogdamffy mentioned in those patents?

A. Yes.

Q. 4. You are acquainted with Mr. Alberti, the last witness, aren't you?

A. Yes, sir.

Q. 5. Where were you employed during the years 1911, 1912 and 1913?

A. With Alberti, from 1909 till 1914, early summer.

Q. 6. That was the International Cork Company?

A. International Cork Company.

Q. 7. And the factory at that time was where?

A. Sutton Street in Brooklyn.

Q. 8. I show you a cap, Plaintiff's Exhibit 20, marked [fol. 187] White Rock, and ask you if you have ever seen caps made like this?

A. Yes, I have.

Q. 9. About when did you see the first one of those?

A. The first one I seen was approximately in 1913.

Q. 10. Now, I show you another exhibit, Plaintiff's Exhibit 8, which is a crown cap with a cork lining and a metal center spot of some kind, fastened thereon.

A. Yes.

Q. 11. Have you seen those before?

A. Yes, I have seen those late in 1913.

Q. 12. And whereabouts did you see that?

A. Mr. Emil Alberti, the brother of John Alberti, he showed me a few of those caps.

Q. 13. And how do you fix the date of 1913?

A. Because we were engaged in changing machines from a method—the American Cork & Seal brought a suit against the method and the question was, could we manufacture them and we had no time then to bother with anything else but to change our machines to get away from the infringement.

Q. 14. Have you got anything to refresh your recollection on that date of 1913?

A. I refresh my recollection on the basis that Mr. Nagy who was employed under me as my assistant, he stepped out from the International having a patent of his own—an idea of his own which he patented in his name and he brought a test exhibit to be tried out and he offered it for sale, to Mr. Alberti.

Q. 15. Did he bring a copy of the patent with him?

A. I am not recalling that whether he had a copy of the patent or not, but he did have it patented, he was covered.

Q. 16. Do you know when he came whether the patent had [fol. 188] been issued on that or not?

A. If my recollection is correct I think he had the patent issued.

Q. 17. I show you a patent to Nagy No. 1,063,720 dated June 3, 1913. Is that the patent you referred to?

A. Yes, that is the patent.

Q. 18. How long did Mr. Nagy work for the International, so far as you know?

A. Approximately a year and a half.

Q. 19. Well, beginning when and when did he leave?

A. He began late in 1911—or early in 1912—no, late in 1911 he began and he left, if my recollection is right in the spring of 1913.

Q. 20. Did you ever have any discussion with Mr. Alberti about manufacturing caps like that one with the metal foil that I just showed you, Plaintiff's Exhibit 8, did you ever talk that with Mr. Alberti about manufacturing them?

A. Mr. Emil Alberti showed it to me and asked me whether we could manufacture them, but being that we were engaged we did not bother with any experiments of the kind.

Q. 21. When did you leave the International Process Company?

A. Approximately in the early Summer of 1914.

Q. 22. What did you do after you left the International Cork Company?

A. I went in business for myself—on designing machines and patenting them.

Q. 23. Machines for what?

A. Crown cork manufacturing and cork manufacturing.

Q. 24. Do you know Mr. Mundette of the Mundette Company?

A. Yes, I do.

Q. 25. Did you ever do any work for him?

A. I did.

Q. 26. When was that?

A. That was in 1916.

[fol. 189] Q. 27. How do you fix that date?

A. I have some orders from Mr. Mundette. I will read the date when I had the first order from Mr. Mundette, it was April 15, 1915.

Q. 28. What was that order for?

A. It was one blocking machine, cost not to exceed $1,000.

Q. 29. A blocking machine?

A. A blocking machine, that was for cork, a regular bottle cork. The second was May 29, 1915, it was 8 machines to paste paper as per drawings and two machines for cutting cigarette tips.

Q. 30. While you were working for Mr. Mundette, did you see any crown caps with center spots?

Mr. Scull: I object, your Honor. This refers to a crown manufacturer by the name of Mondette who is not treated as a prior user in the pleadings and this man is not a prior user and I do not think that any testimony along that line is proper.

The Court: You cannot offer any testimony on prior users that are not pleaded.

The Court: I will sustain the objection.

Mr. Warland: May I hear the last question?

(Last question repeated by the reporter.)

Q. 31. After you left International and after 1920 did you see center spots made by other manufacturers? 1920 is the date of the McManus patent.

A. After 1920?

Q. 32. Yes.

A. Yes, I have.

Q. 33. Who was making those?

A. I do not know that.

[fol. 190] Q. 34. Was it more than one manufacturer that you know of?

A. By using different drinks I saw the center foil on the corks, but I do not know who they was manufactured by.

Q. 35. Did you see many of those?

A. Not many because I was not interested in it commercially looking for a cap.

Q. 36. Do you know the firm of Bamberger & Kraus?

A. I do.

Q. 37. Did you ever see any center spots made by them subsequent to 1920?

A. I have.

Q. 38. Did you see caps made and sold by Mundette subsequent to 1920 having center spots?

A. I have.

Cross-examination.

By Mr. Scull:

X Q. 39. I think you said you saw or Mr. Alberti had showed you some caps like this Plaintiff's Exhibit 8. Do

you know how the foil on that Exhibit 8 is fastened to the cork?

A. I do not.

X Q. 40. Do you know how the foil on the Alberti cap was fastened to the cork?

A. I do not, because we had not manufactured any during my time.

X Q. 41. And therefore, when you said you had seen in the hands of Mr. Alberti a cap like this Exhibit 8, the only thing you were talking about was the superficial appearance of that piece of foil, isn't that right?

A. Correct.

X Q. 42. So far as the rest of it is concerned, you didn't know whether the cork of this particular Exhibit 8 is like the Alberti cap or not?

A. I did not; Alberti did not manufacture any tin-foil at that time.

[fol. 191] X Q. 43. Were you there at the time he was testifying about this morning?

A. Yes, I was here.

X Q. 44. I mean were you with Alberti at that time that he was referring to when they were trying to make a machine to put this spot on?

A. I couldn't hear the conversation through the noise of the elevators, so I do not know what the time was Mr. Alberti testified to.

X Q. 45. Just what was the connection between this Nagy patent that you refer to and the date that you tried to fix, I didn't get that at all?

A. I was asked to refresh my memory as to the date when I seen those caps with the center foil, which Mr. Alberti showed me.

X Q. 46. And you fixed it by that?

A. I fixed it by the date of Nagy, when he brought his model of his, that was right at that time.

X Q. 47. That model of his had nothing to do with center spots, did it?

A. Absolutely nothing.

Mr. Scull: That is all.

Redirect examination.

By Mr. Warland:

R. D. Q. 48. This cap that you saw sometime in 1913 was like Plaintiff's Exhibit 8, in that it had a metal shell and a crown cork disc, and a metal center part, is that right?

A. Correct.

R. D. Q. 49. You do not know how it was fastened on, of course?

A. I do not know.

R. D. Q. 50. You do not know how this is fastened on?

A. I do not.

R. D. Q. 51. When did you say you left the International, sometime in 1914?

[fol. 192] A. International in early summer, 1914, May, June, I can't set the date exactly.

R. D. Q. 52. And had they begun to experiment, tried to make these caps which you refer to, or not?

A. Not.

R. D. Q. 53. What was the reason they gave?

A. Well, they was too busy putting in the machine to get out of the infringement which they had at that time with the Crown Cork & Seal Company.

Berthold Nagy, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Nagy?

A. I am a crown cap machinery manufacturer.

Q. 2. What kind of machinery?

A. Crown cap machinery.

Q. 3. How long have you been in that business?

A. You mean my own business?

Q. 4. Now, in the business of making crown cap machinery.

A. Crown cap machinery—from about 1912 or '11.

Q. 5. Were you in business for yourself all that time or have you worked for other concerns?

A. I have worked for other concerns.

Q. 6. Whom have you worked for, various people?

A. The first time I worked for the International Cork Company.

Q. 7. Who else?

A. Then the Williamsburg Stopper Company and then the New Process Cork Company and Truslow & Fuller.

Q. 8. I show you a crown cap marked White Rock, Plain- [fol. 193] tiff's Exhibit 20. Have you ever seen caps like that before?

A. Yes, I did.

Q. 9. And do you know how the center spot is fastened in there?

A. Why this is first cut a groove in the cork and all around the tinfoil is forced in.

Q. 10. Is that what you have heard called the Millis type of cap?

A. Yes.

Q. 11. Do you know whether those have been made and sold in large quantities or not?

A. I don't know how much is sold, I am not a crown manufacturer.

Q. 12. Did you work for Mr. McManus of the New Process Cork Company?

A. Yes.

Q. 13. When was that?

A. 1916.

Q. 14. Where was he at that time?

A. In Hoboken.

Q. 15. And that was before McManus moved to Brooklyn, is that right?

A. Yes, sir.

Q. 16. Was McManus or the New Process Cork Company making center spots in 1916 when you were there?

A. Yes.

Q. 17. What kind were they making?

A. They were making a center spot with glue, and paper under the tin center.

Q. 18. By that you mean that the spot itself was tin and there was glue paper underneath?

A. First they put the glue paper on the tinfoil. After the tinfoil was cut with that glue, into the cap and fastened in there.

Q. 19. You mean they made a strip of metal and coated

it with a gum of some sort and then they cut the center spot from that gummy strip, is that right?

A. That is right.

Mr. Scull: That is not what the witness has said.

[fol. 194] Mr. Warland: You may straighten him out on cross-examination.

Q. 20. Did McManus have a machine for making center spot caps at that time?

A. Yes, he did.

Q. 21. I show you patent to McManus No. 1,402,780, dated January 10, 1922. Was that the machine you were working on?

A. No, this is—you cannot see it from the top view—no, I did not work on this machine. He had this already there.

Q. 22. He did have that machine when you came?

A. He had it when I came.

Q. 23. In this patent, did that machine satisfy him or did it not?

A. No.

Q. 24. Did you do anything toward designing or adding to the machine for making center spot caps while you were with the New Process?

A. I made up another machine—not a machine, but an attachment, a cutter, to put the center spot in the crown. Not this one (indicating patent), I made another one.

Q. 25. What sort of machine did you put on, or did you put the attachment on?

A. This was an old Johnson machine and I put the new attachment on the head which done this work.

Q. 26. Now what do you mean by an "old Johnson machine"?

A. An old Johnson machine which was worn out for making—for assembling crown caps.

Q. 27. That was just an assembling machine, the assembling of the cork and metal cap?

A. That is right.

Q. 28. As I understand it did you put an attachment on that machine to cut the center spots out?

A. That is right.

[fol. 195] Q. 29. And when you put this attachment on the machine to cut the center spots out of what material did you cut the center spots out of?

A. Tinfoil which was coated with a gum paper. You put the paper through a liquid gum and on that liquid gum paper

it run over on the tinfoil. There was a machine, a pulley-like machine and it went over and dried to tinfoil to that paper and dried the glue on the other side of the paper.

Q. 30. Then as I understand you when you cut the center spot out you cut it out of this strip of tinfoil?

A. Yes.

Q. 31. That had on the underside of it a coating of gum paper, is that right?

A. That is right.

Q. 32. And that gum paper stuck to the cap?

(Met pursuant to recess at 2 p. m.; present as before.)

Mr. Warland: If the Court please, this morning your Honor sustained Mr. Scull's objection to a question as to certain things that were on the market in 1916 on the ground that I had not pleaded it as an anticipation. Now, I overlooked at the time that the McManus patent was applied for in November, 1915, and what I want to ask him was something that was subsequent to the date of application, which I do not believe could be considered as a prior use.

Mr. Scull: What is the materiality?

Mr. Warland: The materiality is to show a continuous widespread use of these center spot caps by other manufacturers.

[fol. 196] The Court: But that does not go to laches, as they could not stop them until they had a patent.

Mr. Warland: I wanted to show the general use.

The Court: I do not see that at all, Mr. Warland. Here is the point. You pleaded prior use by two certain parties, that you can prove. Now, after the issuance of the patent, on the ground of laches, why, of course, you can show use by other people, but between the time that the application was filed and the time that the patent was granted you cannot show anything because they could not stop anybody, everybody in the world could have done it, everybody in the world could have utilized their invention between the time that the application was filed and the time that the patent was granted, and they couldn't have done a thing.

BERTHOLD NAGY, resumed the stand.

Direct examination.

By Mr. Warland (continued):

Q. 33. Did that gum paper stick to the cork disc?

A. Yes.

Q. 34. And have you got a strip of material like what was used then?

A. Something similar.

Q. 35. I understand that this is similar to the material Mr. McManus used in Hoboken in 1916, for making center spot caps?

A. Yes.

[fol. 197] Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit F in evidence.)

Q. 36. Do you know whether Mr. McManus was doing very much business in center spot caps when you were with him?

A. Why, I do not know exactly; I think about 200 gross a week or a month, I do not exactly know, I do not pay attention so much.

Q. 37. Now, you say you put an equipment on an old Clark Johnson assembly machine for cutting the center spots?

A. Yes.

Q. 38. Did you ever put a similar attachment on a machine for the defendant Gutmann?

A. Yes.

Q. 39. When did you do that?

A. I think in 1924, the exact date I have here.

Q. 40. Now I show you two bills on your letterhead, one dated November 1, 1924, and the other November 20, 1924, made out to Ferdinand Gutmann Company; tell me what those bills are.

A. This bill was where he bought that attachment, the dies, the part called the dies to cut the center spot into the metal cap.

Q. 41. Did you put that on the Gutmann Company machine in November, 1924?

A. Yes. I did not put the attachment on, they put it on themselves, I just sold the attachment.

Q. 42. Did that attachment have a die for cutting center spots?

A. Yes.

Q. 43. Have you got one of those dies with you like that?
A. No, I haven't got it any more.

Mr. Warland: I offer those two bills in evidence.

(Marked Defendant's Exhibit G in evidence.)

[fol. 198] Q. 44. They paid those bills?
A. They did.
Q. 45. Before you put that attachment on the Gutmann machine did you ever see a machine making center spot crowns?
A. Why, I saw a machine in Pittsburgh which was similar to mine, but I didn't build the machine.
Q. 46. Whose machine was that?
A. That was Pittsburgh Stopper—Bamberger & Kraus.

Mr. Scull: That is not pleaded as a prior use.
The Court: No.
Mr. Warland: The question asked there hasn't to do with prior use.
The Court: It won't be considered as a prior use.

Q. 47. Did you put any dies on machines for cutting out center spots for any other manufacturer?
A. Yes.
Q. 48. Who was that?

Mr. Scull: When is all this?

Q. 49. When did you see that?
A. When I see that? I do not remember exactly, but before 1924.

The Court: Was it after 1920 or before 1920, that is the date we are concerned with?
The Witness: I couldn't remember exactly, but I am sure it was before 1924.
The Court: It was before 1924, but was it after 1920 or before 1920?
The Witness: I think it was after 1920.
The Court: All right.
[fol. 199] The Witness: I am not sure about the date, but I think so.

Q. 50. Have you got any bills from anybody or copies of bills you have rendered to anybody for putting in those center spot attachments?
A. I made a delivery of one to Al Mundette.

Q. 51. What is the date of that?
A. That was July 12, 1921.

The Court: All right.

Q. 52. Did you put a die for cutting center spots on one of Mundette's machines about the time of that bill?
A. Yes; I just sold the attachment, sold the attachment to Mundette. This is a duplicate bill.

The Court: That refreshes your recollection?
The Witness: Exactly.
The Court: From that bill?
The Witness: Exactly.

Q. 53. Now here you put an attachment for cutting center spots on a machine within the last year or two, for anybody?
A. Yes, I did, many of them.
Q. 54. Do you remember putting one on for a Mr. Fries of the Crown Cap Manufacturing Company?
A. For Mr. Fries I made a complete machine. I overhauled a Johnson machine and I put up an attachment for putting that center spot on the crown.
Q. 55. When was that?
A. That was May 19, 1933.
[fol. 200] Q. 56. Did you put any other attachment on that machine?
A. Which machine do you mean?
Q. 57. For Mr. Fries.
A. I made a cutting attachment on it, and I made a machine to produce the crown in one operation.
Q. 58. You have been to the defendant's factory, the Ferdinand Gutmann Company, haven't you?
A. Lately, about a couple of weeks ago.
Q. 59. And you have been doing work for them off and on all the time?
A. Yes.
Q. 60. And do you know the type of machine they have been using for the last two or three years, for making caps, covered by Mr. Cohn's patent, do you know that machine?
A. Yes, I saw it the last time I was up at their factory.
Q. 61. Like this shown in the patent to Cohn No. 1,921,808?
A. Yes, sir, but this is not the machine that shows on the picture here. I cannot tell you anything by this here (indicating).

Q. 62. Well, how does that machine in the Gutmann factory work, that is shown in that patent?

A. How I saw it, first they put glue in the cap and they heat it—they heat up the crown with gas and after the crown was heated they put the cork in it and after the cork was in the cap they put the tin-foil the same as I did with ours.

Q. 63. It is all done in one machine?

A. One operation, yes, sir.

Q. 64. Was the machine you made for Mr. Fries of the Crown Cap & Manufacturing Company the same machine and working the same way as the machine that Gutmann has?

A. The machine is about the same, but the work is done differently. First the machine I built put the glue in the cap and put the cork in the cap immediately and after put the tin center on and then heated altogether, the tin center, the cork and the cap.

[fol. 201] Q. 65. But the putting of the cork disc in the cap and the putting of the center spot on was all done in one machine?

A. One machine, yes, sir.

Cross-examination.

By Mr. Scull:

X Q. 66. When you said you sold this attachment to Mr. Fries, who is this Mr. Fries?

A. Mr. Fries was the owner of the Crown Cap Manufacturing Company.

X Q. 67. It is not the Crown Cork & Seal Company, is it?

A. No, the Crown Cap Manufacturing Company.

X Q. 68. Did you ever see that machine in operation at the Crown Cap Manufacturing Company?

A. Why I built it, I built the whole machine and of course I did.

The Court: Did you see it in operation?

The Witness: In operation. I put it up for them and I demonstrated it to them before they paid for it.

X Q. 69. When was that?

A. I just gave you the date, it was 1933.

X Q. 70. That was May 19, 1933, the date of your bill?

A. Well, it is not a bill, it is a duplicate.

X Q. 71. But I say that is the date, May 19?

A. Yes.

X Q. 72. 1933?

A. Yes.

X Q. 73. And how much later than May 19 did you see it in operation there?

A. I think a few days later. As soon as I delivered it I demonstrated it.

X Q. 74. And then after that you did not see it?

A. No.

[fol. 202] X Q. 75. Those attachments you say you sold were simply a punch and a means for operating it and a feed for a center spot foil, is that what you made?

A. Yes.

X Q. 76. What mechanism was there in the attachments that you say you made?

A. This is a new kind.

X Q. 77. I am not talking about the one you sold to Fries, I am talking about the earlier ones.

A. The same feed was on it what we used to have for feeding resin paper to the machine. In other words this attachment takes place on the machine where we used to put on the cork. The feed we took off from the machine and we put it in the same place where we used to put the cork in it and we used it for the tin center. In other words the machine is here, (indicating.) and you put the cork in first or the paper in first and then you put the cork in. Now we would change it and put this paper head here and use a thin paper feed, a resin paper feed.

X Q. 78. And how did you wet the adhesive on that strip?

A. How did I what?

X Q. 79. How did you wet the adhesive on that strip?

Mr. Warland: Which strip are you talking about?

X Q. 80. Mr. Nagy, just to straighten out your counsel, you told us of selling some dies for cutting the center spots, to Gutmann, in 1924.

A. That is right.

X Q. 81. That is what I am talking about.

A. Yes.

X Q. 82. What I want to know is on the machine to [fol. 203] which that attachment was applied how was the adhesive for the spot wet?

A. Why, I think they used—I did not see the machine afterwards because I told you I just sold the attachment and I did not know what they used on it.

X Q. 83. Now in this McManus machine that you say you saw in use in Hoboken, for putting on center spots.

A. Yes, sir.

X Q. 84. What kind of adhesive was he using?

A. He wet the cork with a sponge before we put the tin center on.

X Q. 85. I think you said they sold about 200 gross a month?

A. I don't know exactly; I think about 200 gross a month or a week, I don't know exactly. I know that a 200-gross case was shipped out as soon as it was ready. It took about a week at that time to make 200 gross and the machine was working steady.

X Q. 88. On this machine that you built for Mr. Fries.

A. Yes.

X Q. 87. About how long would it take to make 200 gross?

A. Oh, when I delivered it about 250 per minute, and you must figure it out.

X Q. 88. It would take around two hours for 200 gross, is that right?

A. About two to two and a half hours.

X Q. 89. In other words, on the machine here in 1933 you are doing the same thing in two hours that it took a week to do back in 1916, when you were with McManus, is that right?

A. Yes, about.

X Q. 90. Why is the difference?

A. Why, that time was new and we just run the machine so slow, and now it is not new.

X Q. 91. Why didn't you run them any faster in 1916? [fol. 204] A. Why, I think the material wasn't good enough to stick as well as later on. We improved this a few weeks later to go ahead faster.

X Q. 92. If you speeded it up a little bit the spots got out of center?

A. Not was thick enough, because at that time the gum was not good enough. A little later, a few weeks later, I get some better gum, I don't remember, so long time, but we speeded up the machine all right. The first time it didn't

prove satisfactory at the high speed, and we tried it the second time and the fault was the gum.

X Q. 93. Do you know anybody that is sticking the spots on by means of gum now?

A. No, I don't know exactly.

X Q. 94. When was the last time that you saw anybody trying to stick spots on by means of gum?

A. I don't remember; you know this business came out in the last few years, and in that time they have changed it.

X Q. 95. When you were with the International did they make any spot crowns?

A. No, I don't remember; I don't think they did.

X Q. 96. Did you see any attempt to make spot crowns there?

A. No.

X Q. 97. What was the object of putting this paper back of the tin-foil on the McManus spot?

A. I believe stick to the cork, the tin-foil stick to the cork.

X Q. 98. Did McManus ever try it, to your knowledge, with the cement directly on the tin-foil without the paper?

A. I don't know. As far as I know, never did.

X Q. 99. This McManus machine, as I understand, when you went there, wasn't working satisfactorily?

A. No.

X Q. 100. That was in 1916?

A. Yes.

[fol. 205] X Q. 101. Then you put your brains on it and you made it work a little more satisfactorily?

A. Not the same machine; I made another machine.

X Q. 102. What was the difference between the two?

A. My attachment went into the cap to make it center. Before it don't have no chance to center.

X Q. 103. Before that they had been going out of center?

A. Yes, before, so in my machine I put the cap in and it centralized the cap.

X Q. 104. Whatever happened to that machine that you made?

A. I don't know. When I left there, working, working condition.

X Q. 105. When did you leave there?

A. In 1917; I work about a year and a half in McManus for new process about a year and a half or so.

X Q. 106. Now you are making center spot machinery for other manufacturers, aren't you?

A. Not machinery, just the die, the attachment.

X Q. 107. The attachment, and you got notice of infringement from the Crown Cork & Seal Company last spring?

A. Yes, I have right here.

X Q. 108. And they notified you that you were infringing under what patents?

A. There is the letter, here is the letter, and I wrote them back it has nothing to do with crown manufacture, it has nothing to do with any of those patents.

X Q. 109. Just read what you wrote to us.

Mr. Warland: Why not read your letter?

The Witness: You had better read it. Let somebody else read it. There is my answer on the yellow paper.

X Q. 110. You have handed me a letter dated January 15, [fol: 206] 1935, on the letterhead of Cushman, Darby & Cushman, which calls your attention to the Warth reissue patent 19,117, and the Warth patent 1,967,195, and states that you are building machines for concerns not licensed by the Crown Cork & Seal Company, and that such machines are intended for practicing the methods covered by these patents, and that you are of course liable as a contributory infringer. That is the fact, isn't it?

A. Well, that is what you said, but I do not agree with them.

X Q. 111. And you replied to that?

A. The yellow paper.

X Q. 112. On February 8, 1935, in which you said, "First of all, I am not a crown manufacturer,"——

Mr. Warland: Read the whole letter.

Mr. Scull: You can do that later if you want to. "First of all, I am not a crown manufacturer, and the spot machine which I work on belongs to a concern who takes care of patent litigation, if any. Secondly, I have my own spot machine. Of course, it is not yet on the market, but when I do put it on the market, I shall take care so there will be no infringement on your client's patents."

X Q. 113. That is your letter?

A. That is right.

X Q. 114. Who is this concern that takes care of your patent litigation, that you speak of?

Mr. Warland: I do not think that has anything to do with the issues.

The Court: No, I do not think so.

Mr. Scull: I just want him to elucidate what he is talking about.

[fol. 207] The Court: I do not think it makes any difference. You are not suing him now.

X Q. 115. It is the fact, Mr. Nagy, that in your testimony here today you are interested in having these patents in suit here invalidated, aren't you?

A. Will you tell me again? I don't know. I don't understand very well what you mean.

(Last question repeated by the reporter.)

A. I don't answer that here; that is my business——

The Court: Let him answer it; it goes to his credibility.

Mr. Warland: He doesn't know what "invalidated" means.

The Witness: I do not want to answer; this is perhaps against my business.

X Q. 116. What?

A. This is against my business.

X Q. 117. These patents are against your business?

A. Not patents, but this question.

X Q. 118. These patents——

A. If you will make it plainer.

X Q. 119. You know what patents are involved in this suit that is going on at the present time?

A. I don't know; I don't know several patents going on here, I don't have no time to look into it, I am not interested to know anything about these patents, I just come here as a witness.

X Q. 120. You are not interested in seeing these patents we are suing on here, involved in this suit on trial here, are knocked out?

A. I have nothing to do with it; I am not interested in it.

[fol. 208] X Q. 121. You are not interested?

A. Not interested at all.

X Q. 122. You know, don't you, if the patents were invalidated, then this notice of infringement wouldn't amount to anything?

A. No. First of all, my patent had no infringing with this, what you are now doing, and secondly, you send me

a letter about my machine is infringing, I don't pay attention to it because I made the same machine which I made in 1916.

Redirect examination.

By Mr. Warland:

R. D. Q. 123. These machines that you made in 1916 for cutting spots, what were they, were they what is known as the Clark Johnson assembling machine?

A. Yes, sir.

R. D. Q. 124. And that just puts a crown cap in the shell?

A. Yes.

R. D. Q. 125. Now as I understand it you put an attachment on that old machine for cutting center spots?

A. Yes.

R. D. Q. 126. And that is the same thing you put on Gutmann's machine in 1924?

A. Yes.

R. D. Q. 127. You have been making those ever since 1916, putting those attachments on?

A. Yes.

R. D. Q. 128. You never had any notice of any infringement until you got this letter?

A. Yes, I got one from Mr. Johnson.

R. D. Q. 129. And you were subpœnaed to come down here?

A. Yes, sir, right here.

R. D. Q. 130. Now have you that letter from Mr. Johnson?

A. Yes, sir (handing to counsel).

Mr. Warland: If your Honor pleases, I will read this letter to save the witness that trouble.

[fol. 209] The Court: Very well.

Mr. Warland: It reads as follows; it is on the letterhead of "John O. Seifert and John A. Seifert, patents and patent causes, 277 Broadway, New York.

"Mr. B. Nagy, 125 Nostrand Avenue, Brooklyn, New York.

DEAR SIRS:

"My client, Mr. John A. Johnson of the A. Johnson Machine Works has informed me that he has been advised that

you are contemplating making and marketing machines for the assembling of what is commonly known as 'Spot Crown Closure Caps' for receptacles and to also rebuild and convert machines heretofore adapted for the assembling of sealing pads in crown closure caps to adapt such machines for the assembling of a spot of impervious material upon the sealing pad in crown closure caps and embodying in such machines features of invention of a machine which is being manufactured and marketed by the A. Johnson Machine Works under and covered by Letters Patent of the United States No. 1,852,578, issued to Mr. Johnson April 25, 1932, for 'Method of and apparatus for assembling linings in closure caps.'

"The building or rebuilding of machines by you for assembling spots of impervious material upon the sealing pads [fol. 210] of crown closure caps as it is understood you contemplate building would be an infringement of the above-mentioned Letters Patent No. 1,852,578, and will make you liable for a suit for infringement and damages. Notice is hereby served on you that you refrain from building or rebuilding of machines in infringement of the above-mentioned Letters Patent 1,852,578.

Yours very truly, John O. Seifert."

R. D. Q. 131. Did you make any answer to that letter?

A. No, sir.

R. D. Q. 132. What is the date of that letter?

A. May 17, 1933.

R. D. Q. 133. Just what time did you leave the International Cork Company where Mr. Alberti was?

A. I don't know the date, but about 1913, I am sure about that.

R. D. Q. 134. What time in 1913?

A. About July, June or February.

R. D. Q. 135. Did you leave there before you got the patent of yours or after you got the patent?

A. Which patent do you mean?

R. D. Q. 136. This patent No. 1,063,720. Are you the Nagy mentioned in that patent (handing to witness.)?

A. This is my patent, yes, sir.

R. D. Q. 137. Did you leave the International before this patent was issued to you?

A. Before this patent was issued.

R. D. Q. 138. Now this machine you made for Mr. Fries of the Crown Cap Manufacturing Company, that I understand it was the assembling of the crown and putting the spot and it was all done in one machine?

A. Yes.

[fol. 211] R. D. Q. 139. Just the way they do at Gutmann's?

A. Yes.

R. D. Q. 140. Do you know what became of the Crown Cap Manufacturing Company?

A. So far as I know they sold out to the Crown Cork & Seal Company.

Mr. Scull: I object to that as hearsay.

The Witness: That is what I heard.

The Court: Strike it out.

You don't know, do you, just somebody told you?

The Witness: I heard they were sold to the Crown Cork & Seal.

The Court: Strike it out.

R. D. Q. 141. I show you a patent to Warth 1,899,783. Will you look at Fig. 3 of that patent and you will see a strip marked EE and a strip marked E, the top one is foil and the lower one is gutta percha. Did you ever see crown caps made like that?

A. Yes, I saw a machine to operate on this kind of a method at Bamberger & Kraus in Pittsburgh.

R. D. Q. 142. And about what time was that?

A. In 1924.

Irving P. Macauley, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Macauley?

A. Thin gauge metals, commonly known as foil.

[fol. 212] Q. 2. How long have you been in that business?

A. Since 1919.

Q. 3. Under what name, or what concern are you connected with now?

A. The Reynolds Metal Company.

Q. 4. Is that concern the successor of any other company in the same line of business?

A. They bought the business of that other concern out.

Q. 5. What was the name of that other concern, the Beechnut Foil Company?

A. The Beechnut Foil Company, yes.

Q. 6. You were with them before they were bought out?

A. Yes.

Q. 7. You were with them continuously since 1919?

A. I was with the Beechnut Company from 1919 to 1928 when they were bought out.

The Court: What is the name of your concern now?

The Witness: Reynolds Metal Company.

Q. 8. Have you done any business with the defendant Ferdinand Gutmann Company?

A. Yes.

Q. 9. Have you sold them any goods?

A. Yes.

Q. 10. What kind?

A. Both tin and aluminum foils.

Q. 11. I show you a confirmation order of the Beechnut Foil Company, dated December 31, 1924, and I ask you what that was for?

A. That is for pure tin-foil of a given gauge, .0045.

Mr. Scull: How many pounds?

The Witness: Several small rolls, I believe.

Q. 12. Do you know what Gutmann bought that for?

A. Only I have my own ideas.

Q. 13. Did they tell you at the time what they bought it for?

[fol. 213] Mr. Scull: I object to that, your Honor.

The Court: He does not know.

Mr. Warland: He said that he had his own ideas and I now ask him whether they told him at the time.

The Court: And he said no. It would not be competent what they told him, anyhow.

Mr. Warland: I offer this confirmation order in evidence.

(Marked Defendant's Exhibit H in evidence.)

Q. 14. I show you a letter on the letterhead of Beechnut Foil Company, dated January 17, 1925. Are you the Mr. Macauley who signed that letter?

A. That is right, yes, sir.

Q. 15. Please read that letter.

A. "This will acknowledge receipt of yours of January 16th relative to the gutta percha delivered to us. Your comments have been noted, and whatever is left of this material after mounting on the foil will most certainly be returned. Assuring you of our best attention to the matter, we are, Very truly yours, Beechnut Foil Company."

The Court: Who is this addressed to?

The Witness: Beechnut Foil Company.

The Court: It was addressed to them?

The Witness: This was addressed to the Ferdinand Gutmann Company.

The Court: That is what I want to know.

Mr. Warland: I offer that letter in evidence.

(Marked Defendant's Exhibit I in evidence.)

[fol. 214] Q. 16. What do you mean there by mounting on the foil?

A. In this particular instance it was sheet gutta percha mounted by pressure to the foil.

Q. 17. Do I understand that the Ferdinand Gutmann Company sent you the gutta percha and you mounted it on this foil, is that what happened?

A. That is right.

Q. 18. I show you a confirmation order on the letterhead of Beechnut Foil Company, dated January 12, 1925, addressed to Ferdinand Gutmann & Company, the defendant in this case. Did you deliver the goods in accordance with that order?

A. I think that could only be substantiated by an invoice which would indicate delivery.

Q. 19. Does this apply to that order, or does this apply to the previous one?

A. This doesn't apply.

Q. 20. I show you confirmation dated January 17, 1925, bearing No. 6,936, and I also show you an invoice from the Beechnut Foil Company of the same date, bearing the same number, 6,936.

A. That is correct.

Q. 21. Did you deliver those goods to Gutmann as called for in that invoice?

A. Yes.

Q. 22. Did you deliver considerable quantities of other tin-foil at various times running through 1925 and subsequently on which you had put the gutta percha which they sent you?

A. I would really have to have a statement like that substantiated by—Ferdinand Gutmann & Company, we sold them a great deal of foil. How much of that, or what proportion, was mounted on gutta percha, is a matter that the files could only reveal.

[fol. 215] Q. 23. I show you invoices dated February 21, 1925, February 19, 1925, February 17, 1925, February 5, 1925, two on February 5, 1925; will you please look at those and see if those refresh your recollection?

A. Yes.

Mr. Warland: I will offer this order and invoice together.

The Court: That is an invoice of what date?

Mr. Warland: Of January 22, 1925.

The Court: It is received.

(Marked Defendant's Exhibit J in evidence.)

The Court: What about these the gentleman has?

Q. 24. What about those? Did you ship the goods mentioned and described in those invoices to the defendant Gutmann on or about the dates mentioned in those invoices?

A. Yes.

Q. 25. And they paid you for them in the regular course of business?

A. I am pretty sure.

Q. 26. Could you say whether any of these, whether those invoices you have just handed me apply on this confirmation dated January 30, 1925, which calls for strictly pure tin-foil 45/1000 of an inch thick mounted on gutta percha inter-leaved with wax paper in rolls one inch wide, core 1-9/32 of an inch in diameter?

A. That could be checked by the corresponding number on the invoices. Those all apply to this original confirmation.

Mr. Warland: I offer in evidence confirmation orders and [fol. 216] invoices from the Beechnut Foil Company to the

defendant, Ferdinand Gutmann & Company, five in number, running from December 31, 1924, through February 21, 1925.

(Marked Defendant's Exhibit K in evidence.)

Q. 27. I show you letters dated January 24, 1929, and January 30, 1929, and I ask you what those refer to.

A. These refer to aluminum-foil mounted to gutta percha in which we state that some experimenting had been done in our Louisville plant. We quote prices in this later letter and we mention sending samples of the mounted gutta percha. This is signed by a salesman in our organization, Mr. Cage.

Mr. Warland: I offer those two letters in evidence.)

(Marked Defendant's Exhibit L in evidence.)

Q. 28. I show you letters and invoices from the Reynolds Metal Company running through February 8th, 1929, to March 12th, 1929, with copies of letters written by the defendant to you and I ask you if the Reynolds Metal Company sold and delivered the goods mentioned in those letters and invoices to the defendant, the Ferdinand Gutmann Company on or about the dates mentioned in the invoices?

A. That is correct. We invoiced and shipped that particular one (indicating). There is no supporting invoice on this particular one (indicating).

Mr. Warland: I offer the letter of March 12th and the invoice in evidence.

(Marked Defendant's Exhibit M in evidence.)

[fol. 217] Q. 29. What about those others, did you ship the goods called for in those invoices?

A. I cannot state without the invoice.

Q. 30. Didn't I hand you the invoices?

A. Not this particular one.

Q. 31. I hand you a number of invoices running from June 29th to August 29th and I ask you to tell me whether you shipped the goods mentioned in those invoices to the defendant the Ferdinand Gutmann Company?

A. This is a different product that we have been talking about.

Q. 32. Is this plain aluminum-foil?

A. This is unmounted.

Q. 33. Did you ship the plain aluminum-foil called for in those invoices?

A. Yes.

Mr. Warland: I offer these invoices in evidence.

(Marked Defendant's Exhibit N in evidence.)

Q. 34. Now subsequent to 1929 and up to the present time have you sold to the Ferdinand Gutmann Company?

A. Yes.

Q. 35. What is that you have in your hand?

A. This is a confirmation or letters pertaining to the order but no confirming invoice. There is nothing to indicate that the goods were shipped rather.

Q. 36. Is this invoice attached to Defendant's Exhibit M the one that you refer to in this letter of February 22nd?

A. That is the one. That was shipped.

Q. 37. That was shipped to Gutmann & Company on that date?

A. Yes.

Mr. Warland: I offer in evidence the letters dated Feb-
[fol. 218] ruary 22, 1929, and February 8, 1929, from the Reynolds Metal Company to Ferdinand Gutmann.

(Marked Defendant's Exhibit O in evidence.)

Q. 38. What is the width of this metal foil that you sold to the Gutmann Company, was it all one width or did it vary?

A. My statement can be supported by the evidence in the form of those invoices, but as I recall, it was from one inch to 26 inches or 25, I am not quite sure of that.

Q. 39. Did they tell you why they wanted it cut in one-inch strips?

Mr. Scull: I object to that, your Honor, that is hearsay.

The Court: I do not see how he can testify as to that. He can state the fact that he knows they did sell it in certain sizes.

Q. 40. As I understand your testimony, you know, and the invoices show, that you did sell some of this in one-inch strips and some in 25 or 26-inch strips?

A. I believe that is correct.

Cross-examination.

By Mr. Scull:

X Q. 41. Mr. Macauley, I call your attention to this Exhibit H which, as I understand it, is simply the confirmation of a sale of a quantity of pure tin-foil, the weight not specified, but it was to be in eight small rolls, 1⅛ inches wide, that is correct, is it?

A. The weight is specified; the weight is the thickness.

X Q. 42. But I meant the total weight that was to be supplied is not specified?

A. That is correct.

[fol. 219] X Q. 43. Now on this invoice 538, dated January 19, 1925, my understanding is that this shows a shipment of one package of pure tin-foil one inch wide, the shipment having been made on January 13, 1925, that is correct, isn't it?

A. Yes.

X Q. 44. There is nothing on that to indicate that that is coated with gutta percha?

A. No.

X Q. 45. In fact, the order to which it relates, namely, 6,811, states nothing about gutta percha, that is the one you just saw?

A. Yes, that is correct, yes.

X Q. 46. Now, then, this letter of January 17, 1925, which forms Exhibit I, refers to a letter which apparently you had received from the Gutmann Company under date of January 16th. Have you been shown that letter?

A. I do not recall whether it was in the other exhibits or not. I do not recall having seen the letter to which this is a response.

X Q. 47. Keeping in mind the fact that the general order for an indefinite quantity of pure tin-foil was placed under date of December 31, 1924, that a package having the same order number, 6,811, as Exhibit H, was shipped on January 13, 1925, and that this letter, Exhibit I, which was shown you, is dated January 17, 1925, does that refresh your recollection that after this tin-foil was received by Gutmann on January 13, 1925, that they sent it back to you to be coated with gutta percha?

A. That doesn't refresh my memory; I am very vague on that. That would be difficult to do from a manufacturing standpoint. However, it would be entirely possible.

[fol. 220] Redirect examination.

By Mr. Warland:

R. D. Q. 48. Would the price on these various invoices which you have put in evidence have any bearing on the question of whether the metal foil was coated with gutta percha or whether it was not?

A. I would say it would be a pretty good indicator.

R. D. Q. 49. Can you tell by looking at these various invoices from the prices, whether some of them had gutta percha mounted on it or not?

A. I can. How would you like to have me designate this?

R. D. Q. 50. If you would be just so good to read it to the stenographer which is gutta percha and which is not.

A. By the number?

R. D. Q. 51. By the number or letter; I think they are all letters.

A. This is an invoice number; you mean that?

R. D. Q. 52. All right, but hasn't that a letter on it, an exhibit letter? Maybe that one has not.

A. I do not see one. Oh, Exhibit J, it says on the invoice gutta percha. Exhibit M is also gutta percha. Exhibit O refers to gutta percha. These are all unmounted foils, this group, except the last one, and that is pretty hard to state. It says plain aluminum-foil.

R. D. Q. 53. What exhibit is that?

A. Exhibit N. Exhibit I, it refers in the letter to gutta percha mounting, and Exhibit K is gutta percha mounted. Exhibit H is unmounted. These invoices pertain to Exhibit K. (Indicating.)

R. D. Q. 54. Were you subpœnaed over here?

A. Yes, sir.

[fol. 221] John A. Johnson, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Johnson?

A. I got a machine shop, building machines.

The Court: What is that?

The Witness: I build machines in a machine shop.

Q. 2 For what purpose principally?

A. I specialize in machines for manufacturing bottle corks and what we call crown corks.

Q. 3. I show you a patent No. 1,852,578, dated April 5, 1932.

A. Yes, sir.

Q. 4. Issued to Mr. J. A. Johnson.

A. Yes.

Q. 5. Are you the Mr. Johnson mentioned in that patent?

A. That's me.

Q. 6. How long have you been in this business of making machines for crown caps?

A. 33 years.

Q. 7. Did you sell a machine like that shown in the patent just handed to you to the defendant the Ferdinand Gutmann Company?

A. Could I see that a minute again? I do not seem to recall that. This is what we call a winding machine and I cannot recall right away whether I sold one to Gutmann's but I think I did.

Q. 8. Mr. Johnson, just a minute, this machine of your patent No. 1,852,578, what is that for, a spotting machine or a winding machine?

A. It is for pasting together the tin-foil or paper and [fol. 222] the gutta percha tissue, for pasting them two together. We call it a winding machine.

Q. 9. Will you just look at your patent No. 1,852,578 again?

A. That is what we call a spotting machine.

Q. 10. Now, did you sell a spotting machine like that shown in that patent No. 1,852,578 to Ferdinand Gutmann?

A. Yes.

Q. 11. I show you a bill dated August 31, 1928, made out to Fedinand Gutmann and Company. Did you sell them the machine called for by that bill?

A. Yes, that is one of mine.

Q. 12. And would you call that a spotting machine made like the patent that I just showed you, is that right?

A. That is right.

Q. 13. Did you deliver it about the date mentioned in that bill, August 28, 1928?

A. If it is on the bill that was the delivery date. I have the two here, that is the copies.

Q. 14. They paid for this machine?
A. Yes.

Mr. Warland: I offer this bill in evidence.

(Marked Defendant's Exhibit P in evidence.)

Q. 15. I show you four bills running from September 17, 1928, to April 30, 1929, for assembling machines, made out to Ferdinand Gutmann & Company, and ask you if you sold and delivered to them the machines mentioned in those bills on the dates mentioned in the bills?
A. Correct.
Q. 16. You did?
A. Yes.

Mr. Warland: I offer those four bills in evidence.

(Marked Defendant's Exhibit Q in evidence.)

[fol. 223] Q. 17. I show you four bills dated from May 16, 1933, to June 19, 1933, made out to Ferdinand Gutmann & Company, and ask you if you sold them those machines on the dates mentioned in the bills?
A. That is correct.
Q. 18. And you delivered them about the dates set forth?
A. Yes, delivered maybe a day or two before that, or maybe a week before.
Q. 19. Those bills that I have just shown you and which you say you delivered to Gutmann were for spotting machines like those shown in your patent No. 1,852,578?
A. No, they are not the same machines; there was only two delivered of that kind that shows on this patent.
Q. 20. Which two are those?
A. That was in 1928.

Mr. Warland: I offer in evidence the four bills last mentioned.

(Marked Defendant's Exhibit R in evidence.)

The Witness: This is what we call combination machines.

Q. 21. Which are you speaking of now, the last ones?
A. The four last, the eight last; there was four of each, there was eight bills altogether, and there was one before. That was for the spotting machine that this patent is on,

one of them; the other eight ain't, that is a combination machine where we assemble the crowns in the same machine as we put on the spots.

Q. 22. But is the spotting mechanism and the method of cutting out the spot the same in these combination machines as it is in your patent?

A. That is right; it is the same thing as it is in that patent.

[fol. 224] Q. 23. The only thing is, in these last four machines——

A. Last eight machines, I combined the two machines.

Q. 24. You combined the two machines?

A. Yes.

Q. 25. So the whole operation can be done in one machine?

A. In one machine, that is right.

Q. 26. Now I show you a bill dated July 31, 1928, made out to Ferdinand Gutmann, for one tin-foil machine with hopper, $1200; what is that?

A. That is the same as the other, the same as the one that this patent application, the patent is for, exactly the same, except that one was $950 and the other was $1200, because it is additional because it had a hopper to it.

Q. 27. This machine of July, 1928, you say that was made like the patent. Do you remember whether that machine had a drum or collecting drum on that?

A. No, it had no drum on it.

Q. 28. Was there any trouble with Gutmann, any trouble in the operation of that machine?

A. No, it wasn't; I just had two drums inserted to settle it because after the spot was inserted he found it wasn't smooth enough, and I had made machines before with drums on, for assembling machines. I had made those for thirty-three years, and they had drums on all of them, so I inserted smaller drums in this machine so that the tin-foil would come out smoother.

Q. 29. Otherwise it was just like the patent?

A. Yes.

Mr. Warland: I offer this in evidence.

(Marked Defendant's Exhibit S in evidence.)

Q. 30. That machine in the bill of July 28, you say was that a drum. Do you remember whether afterwards that [fol. 225] machine was changed to a lining machine and

I show you a bill and I ask you whether that refreshes your recollection?

A. No, that ain't the machine, I don't think.

Q. 31. I show you a copy of a letter from Gutmann to you, dated February 18th, 1931, and I ask you if that refreshes your recollection on that machine?

A. I cannot recall if that was the machine. In my opinion it ain't the same machine.

Q. 32. Well, do you recall whether when you sold them that machine in July of 1928, that first machine, did they tell you they had any trouble with the spots coming off or anything of that sort?

A. They may have——

Mr. Scull: Just a minute. I object to that, if your Honor pleases.

The Court. Let them testify if they had trouble. This is not the proper witness for that. I will sustain the objection.

Q. 33. Do you know whether that first machine that you delivered in 1928 worked satisfactorily on that?

The Court: Of your own knowledge do you know?

The Witness: From my own knowledge it must have been running, otherwise I always hear a complaint from customers if they don't run properly.

Q. 34. Did you get any complaint mentioned in this letter that I show you, dated February 18, 1931, asking you to [fol. 226] change it to a lining machine?

A. It may be that machine but I am not positive.

Q. 35. You, of course, went to the defendant's factory about the time that you delivered this machine, didn't you?

A. No, I would say I was very seldom in any of the factories. I have been in Gutmann's factory, sure I have on two or three occasions.

Q. 36. Do you remember going there in 1928?

A. What year I cannot say. I think I was in there probably that year but I have been in there three or four times.

Q. 37. Now, did you sell any machines like those shown in your patent here, 1,852,578, to Crown Cork & Seal Company?

A. Yes.

Q. 38. When did you sell those?

A. In 1929.

Q. 39. Have you got any orders from the Crown Cork & Seal Company for those machines?

A. Yes, I have.

Q. 40. Will you let me see them, please?

A. There is the shipping dates and copies of the invoices.

Mr. Warland: I offer these orders from the Crown Cork & Seal Company and the copies of invoices from the Johnson Machine Works for five machines running from March, 1929, to July 3rd, 1929, in evidence.

(Marked Defendant's Exhibit T in evidence.)

Q. 41. Do you own this patent now, No. 1,852,578?

A. No, I sold it.

Q. 42. Who did you sell it to?

A. The Crown Cork & Seal Company.

Q. 43. When did you sell it?

A. It was in 1933.

[fol. 227] Q. 44. What time in 1933?

A. December 12, 1933.

Q. 45. And before you sold it did you have any trouble with the Crown Cork & Seal Company?

A. Well, I did not have any trouble with them, I would not say. They told me that they thought my patent was infringing some of their earlier patents and we came to an agreement and I sold it to them, I did not want to have any court proceedings or anything about it and they give me the exclusive right to make the machines, so I thought it was best to avoid any troubles that way.

Q. 46. Well, you had some little trouble in the Patent Office, didn't you?

A. Yes, the Patent Office notified me that they thought I was infringing or something like that.

Q. 47. Do you remember anything about an interference proceeding in the Patent Office about this patent of yours, 1,852,578?

A. Yes, I guess there was some interference.

Q. 48. Who was your lawyer in that interference proceeding?

A. Mr. Seifert was the name, John C. Seifert.

Q. 49. Do you remember making an affidavit in that proceeding in the Patent Office on what is called a motion to dissolve on the ground of prior public use, do you remember any such affidavit as that?

A. That referred to the public use proceedings, didn't it?

Q. 50. Yes.

A. My attorney, John Seifert, he cancelled that after I sold, or withdraw that from the Patent Office after I had sold the patent.

Mr. Warland: Would you be kind enough to produce those, Mr. Scull?

(Mr. Scull produces papers.)

[fol. 228] Q. 51. I show you an affidavit dated October 31, 1933, and ask you if you signed that affidavit?

A. That is my signature.

Q. 52. I notice you state in this affidavit you are the patentee in this patent No. 1,852,578, the one I have just shown you.

A. Yes.

Q. 53. And you say there that prior to and since July 17, 1928, there was constructed in the shop of the A. Johnson Machine Works, Inc., machines for the spotting of crown bottle caps in accordance with the method set forth in Claims 28, 29 and 30 of said patent, said machines being constructed in all essential details as illustrated in the drawings forming a part of said letters patent and functioning as described in the specification thereof; that said machines for carrying out the method of Claims 28, 29 and 30 of said patent have been in commercial and public use for more than two years prior to April 4, 1933, by Ferdinand Gutmann & Company, 168-39th Street, Brooklyn, New York; the Arrow Bottle Cap Corporation, 410 Morgan Avenue, Brooklyn, New York, and the Crown Cork & Seal Company, Inc., Baltimore, Maryland, the assignee of Albin H. Warth, whose application Serial No. 664,410 is involved in interference with patent No. 1,852,578 issued to me.

That statement of yours, of course, was true?

A. Yes, must be true when I signed it.

Mr. Warland: I offer the petition to institute public use proceedings filed by Mr. Johnson in this interference in evidence.

Mr. Scull: No objection.

(Marked Defendant's Exhibit U in evidence.)

[fol. 229] Q. 54. Now, then, after you sold patent No. 1,852,578 to the Crown Cork & Seal Company, your attorney kept those papers back, is that right?

A. Yes, he kept them back.

Q. 55. Do you know what happened to the interference after that?

A. Well, I presume it was set aside, they settled the whole thing——

Mr. Seull: Your Honor, that is all a matter of record.

The Court: Naturally he does not know.

Mr. Warland: I will prove all that by——

The Court: You can prove it by somebody that knows.

Mr. Warland: By the documents in the interference record.

The Court: You sold the patent and got the money, and that is all you know.

The Witness: That is all I know.

The Court: That is all you are interested in?

The Witness: That was all.

Q. 56. How long have you known of center spot crowns being on the market?

A. Well, I don't know exactly how long they have been on the market; I couldn't answer that. I heard over night——

The Court: Do not tell us what you heard over night, only tell us what you know.

Q. 57. Do you remember when you first saw any?

A. In the beginning of 1927, that was the first time I started to take any interest in making machines for them.

Q. 58. Did you see any center spots before then?

[fol. 230] A. I do not think I did, because they were not used very extensively at that time, before that time.

Q. 59. How do you know they were not used if you don't take any interest?

A. I didn't take any interest; I didn't see any, and of course if you do not see any, I suppose I didn't buy enough beverages to find out where they were or who was using them or anything much——

The Court: All that doesn't mean anything, he doesn't know, so what is the use? Why he didn't know isn't very material.

The Witness: They may have been used——

The Court: Wait a minute. Do not tell us any more because I am going to strike out what you have said already.

The Witness: But there is one thing I would like to know——

The Court: I know, but you answer questions; that is all you have to do.

The Witness: This is different——

The Court: Wait a minute. You answer questions, do not volunteer.

Q. 60. When you started to build the first spotting machine, that was in 1927 or 1928, wasn't it?

A. 1927 about, in the beginning of 1927.

Q. 61. Did you see any crown caps with center spots on before you built that machine?

A. Yes, about 27 years ago I made a machine for a gentleman by the name of Stewart for inserting the spots by a different method.

Q. 62. I show you the White Rock cap marked Plaintiff's Exhibit 28.

A. This is a cap that I made the first machine to insert them.

[fol. 231] Q. 63. Now, just a minute, I ask you when you first saw caps like that.

A. I would say it is about 27 years ago.

Q. 64. And did you make a machine for building those caps?

A. I made one.

Q. 65. Who did you make that for?

A. A gentleman by the name of Stewart.

Q. 66. Where was he?

A. Up at Millis, Massachusetts. He was not up there then, he was in Brooklyn, somewhere, but he moved up there afterwards.

Q. 67. Did you see a lot of caps, do you know whether there was a lot on the market made that way?

A. There was a lot made that way. The last time that I was up in Millis and Stewart was alive I saw about four or five machines running.

Q. 68. When you built this machine of the patent that we have been talking about—1927 you say you built the first one?

A. I may be mistaken by a year or two, but it is about that time as near as I can recall.

Q. 69. What kind of spots did you mean to put in this machine you were building?

A. We would cut a groove in the cork, a flange, and the tinfoil spot would be inserted in it.

Q. 70. I am asking you when you built your machine of 1927, the machine of the patent, what kind of spots were you going to put on crowns, what kind of center spots?

A. Tinfoil spots.

Q. 71. How were you going to insert them?

A. By flanging them and inserting them in the groove that was cut in the cork.

Q. 72. This patent does not call for putting spots in by flanging.

A. I did not patent that machine, I never made one but that.

Q. 73. I am asking you about this patent 1,852,578, what [fol. 232] kind of center spots did you mean to put on?

A. We meant to glue them on.

Q. 74. What kind of glue, gutta percha?

A. Gutta percha lining.

Q. 75. And gum or anything like that?

A. No, I never tried that. Well, I tried it once a little bit, but it did not work.

Q. 76. And had you ever seen a center spot with gutta percha before you thought of building that machine?

A. I had seen—I think I saw a cap once but I don't know where it was made.

Q. 77. In which there was a metal foil center spot fastened on with gutta percha?

A. Yes, but then I had already started to make one and that was in the beginning of 1927.

Q. 78. About how many machines like this patent 1,852,578 have you made and sold, do you remember?

A. I don't think I have that.

Q. 79. Have you got a list?

A. No, I haven't got no list.

Q. 80. Well, did you sell a dozen or two dozen or has your assistant got a list?

A. I cannot say offhand.

Q. 81. I show you a list of machines approximating 34 or 35 and I ask you if you sold all those machines on the

dates mentioned there and if they are all like this Johnson patent 1,852,578.

A. Yes.

Mr. Warland: I offer this list in evidence.

(Marked Defendant's Exhibit V in evidence.)

Q. 82. I show you a catalog issued by the A. Johnson Machine Works and ask you if that is one of your catalogs? [fol. 233] A. Yes, that is one of them, and I have got one with me; that is the same.

Q. 83. Look at page 19.

A. Page 19 is what we call the winding machine.

Q. 84. What is that used for?

A. For winding gutta percha right to tin-foil, adhering gutta percha to tin-foil or paper or aluminum-foil or anything like that.

Q. 85. How long have you been making machines like that shown on page 19?

A. Since 1928, when I started to make the spot machines.

Q. 86. Have you sold many machines like that?

A. No, not very many; maybe three or four of them, maybe less.

Q. 87. You think you put the first one on the market in 1928?

A. I don't know; yes, it was in 1928. I do not know, without looking it up I couldn't give you the date. I think Mr. Gutmann has got one.

Q. 88. Did you sell any to anyone besides Gutmann?

A. I couldn't say without——

Q. 89. Never mind if you haven't got it handy there.

A. I know there wasn't many sold.

Mr. Warland: I would like to offer page 19 of this catalog in evidence.

(Marked Defendant's Exhibit W in evidence.)

Mr. Warland: I will offer in evidence a bill of the Johnson Machine Works to Ferdinand Gutmann & Company, dated March 18, 1931.

(Marked Defendant's Exhibit X in evidence.)

Q. 90. In the machines made like this patent of yours, 1,852,578, the spotting machines, how fast do those ma-
[fol. 234] chines operate?

A. At the start when I made them I could only run them about a hundred a minute, but then in a year's time or so I improved them so you could run them 250.

Q. 91. That is about as fast as they can be run, isn't it?

A. Yes, that is as fast as it is practical to run them.

Q. 92. Now, you told me, as I remember your testimony, that you sold your patent for the spotting machine to the Crown Cork & Seal Company.

A. Yes.

Q. 93. And they gave you a license to use it, is that right?

A. That is right.

Q. 94. Did you make any agreement that you couldn't sell them to anybody else without their permission?

A. Yes, that is right, that I should not sell them to anyone except they signed up an agreement with the Crown Cork & Seal Company, anyone in this country.

Q. 95. In other words, you couldn't sell a machine to any manufacturer unless he signed a license agreement with the Crown Cork & Seal Company?

A. That is right; that is the understanding.

Q. 96. Is this the agreement that you had?

A. Yes.

Mr. Warland: That is offered in evidence.

(Marked Defendant's Exhibit Y in evidence.)

Q. 97. Did you get that letter (handing)?

A. Yes, sir, I got that letter.

Mr. Warland: I offer in evidence a letter received by the plaintiff to John A. Johnson, dated December 12, 1933.

[fol. 235] (Marked Defendant's Exhibit Z in evidence.)

Q. 98. Is this a copy of the assignment you made of the patent to the Crown Cork & Seal Company?

A. That is.

Q. 99. Did you assign this the same day you got that letter now marked Exhibit Z, from the Crown Cork & Seal Company?

A. Yes, sir.

Mr. Warland: I offer this assignment in evidence. I will

ask counsel for the plaintiff when that assignment was recorded.

Mr. Darby: We do not recall the exact date but we will ascertain the same and stipulate it later.

Mr. Warland: Very well.

(Marked Defendant's Exhibit AA in evidence.)

Mr. Warland: That is all.

Cross-examination.

By Mr. Scull:

X Q. 100. I understand, Mr. Johnson, that you began your work leading up to this center spot machine of yours in the first part of 1927.

A. Yes.

X Q. 101. And the first machine which you had completed was the one which you sold to the Sociedad Industriale de Cuba, is that right?

A. That is the one.

X Q. 102. And that was shipped or sold on March 1st, 1928?

A. That is correct.

X Q. 103. Just what did you do in order to get up to that Cuban machine which you sold on March 1st, 1928?

[fol. 236] A. Well, like any machines that you make it takes time to get them completed and that machine was not very good either but it was not sent back so I suppose they are using it. That machine had no preheating on it and it was a heated plunger and that was the first machine that I made. I made two of them but the other one was returned to me so it did not pan out very good until I changed it.

X Q. 104. I show you a photograph which has been touched up apparently for the purposes of making a cut and I ask you if that shows the Cuban machine of March 1st, 1928?

A. Yes, that is the machine.

Mr. Scull: I offer this photograph in evidence, or rather, with the permission of counsel, a photostatic copy of it.

Mr. Warland: No objection to that.

(Marked Plaintiff's Exhibit 35 in evidence.)

X Q. 105. This machine had no dial on it either, did it?

A. No. A drum we call it.

X Q. 106. And after the hot punch had cut out the spot did it apply it directly to the cork?

A. No, there was a cold punch after it, one or two—I think there was two, I think.

X Q. 107. Now, look at this photograph Plaintiff's Exhibit 35 and tell me whether it is not a fact that that shows only two punches?

A. Yes, that shows a punch and a heater in the cutting punch and one heating punch after—we do not have no cold punch. There is two heating punches.

X Q. 108. Now, this machine, as I understand it was completed just about the time or just before you shipped it to Cuba, in March?

A. Right.

[fol. 237] X Q. 109. Now, you said you made two of them and one went out and was returned. Who did that go out to?

A. I think it was to the Armstrong Cork Company to the best of my recollection.

X Q. 110. Was there any trouble about that machine?

A. Yes, there was a lot of trouble about it, it did not work good.

X Q. 111. What did the Armstrong people do about it?

A. I told them to send it back again because I don't want them to pay for a machine that does not work.

X Q. 112. And did you fix it up and ultimately send it to them again?

A. No, I did not send it back at that time. I made some changes on it and I send it to some other customer.

X Q. 113. When you fixed it up, what did you do?

A. Well, in the meantime I had done some further experiments and I saw that that didn't work, and I put pre-heaters on it, and took out the heater in the cutting punch and heated the cork before the spot was inserted, and then made a drum for it to hold it so it should smoothen out the cork better. I think that was the changes that was made.

X Q. 114. I show you a letter signed A. Johnson, dated October 5, 1928, and addressed to Armstrong Cork Company in which you say, "I have now made some changes on the tin-foil machine inasmuch as I have installed a drum with 24 punches on same as I can see that the crown has to be held under pressure after the tin-foil is inserted in

order to make a good job. I am now working on making some changes on the heating units. I have received some special ones which are guaranteed not to burn out, and I [fol. 238] now have to see what I can do in regard to not having the tin-foil disc stick to the punch. I expect to have the machine ready some time next week and then I will write you at once how it is running."

You wrote that letter and sent it on about that date, did you not?

A. Yes, I wrote that letter and sent it at that time, yes, that was the time I was working on what we call the pre-heaters of the cork.

Mr. Scull: I offer this letter, or rather a photostatic copy of it in evidence as Plaintiff's Exhibit 36.

(Marked Plaintiff's Exhibit 36 in evidence.)

X Q. 115. When you say in this letter that you are going to see what you could do in regard to not having the tin-foil disc stick to the punch, do you recall what that was?

A. Yes, I sure do.

X Q. 116. What was it?

A. I took the heat out of the cutting punch altogether and installed two heaters in front of it, and also a space heater I installed before the tin-foil disc was cut and inserted. And that kept the cutting punch cold.

X Q. 117. And that was done after you wrote this letter of October 5th?

A. That was done at that time, you see I had that machine practically completed at that time.

X Q. 118. You say here you were going to see, "and I now have to see what I can do in regard to not having the tin-foil disc stick to the punch."

A. Well, that is the word I suppose I used, I was working on it at this time.

X Q. 119. It was about this time, October 5th, that you put on this pre-heater?

A. Yes.

[fol. 239] X Q. 120. You hadn't had it before that?

A. No.

X Q. 121. Not on any machine?

A. No.

(Recess taken until November 8, 1935; 10:30 a. m.)

Brooklyn, N. Y., November 8, 1935.

Met pursuant to recess at 10:30 a. m.; present as before.

RICHARD C. HARRISON, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Harrison?

A. I am president of the White Rock Mineral Springs Company.

Q. 2. How long have you been president of that company?

A. I have been president since July 1, 1920.

Q. 3. How long have you been connected with the White Rock Company?

A. Since July 1, 1919.

Q. 4. And you are familiar with the type of goods that the White Rock Company puts out?

A. I am.

Q. 5. What do you sell principally, White Rock Water?

A. White Rock Water.

Q. 6. This litigation is concerned with the type of what we call a metal foil spot which is put in the center of a bottle cap, and I show you a bottle cap Plaintiff's Exhibit 20 with a tin-foil center, and that is put in the cork by slotting [fol. 240] the cork and inserting the edge of the tin-foil in there. Is your company using that type of stopper now?

A. Yes.

Q. 7. How many years have you been using that?

A. Well, since approximately 1914, as far as I am aware; we have been using it ever since I have been president.

Q. 8. Do you recall where you purchase such caps?

A. Where?

Q. 9. Yes.

A. Yes.

Q. 10. Where?

A. We own the patent for the metal center, and put them in ourselves.

Q. 11. That patent was obtained from a man named Nielson?

A. No, it was bought from the United Metal Seal Company.

Q. 12. Of Millis, Massachusetts?

A. At the time we bought it they were in Boston, I do not know whether they were ever in Millis.

Q. 13. Do you recall the name and number of that patent?

A. No, I do not.

Q. 14. Would you know it if I showed it to you?

A. I am not sure that I could.

Q. 15. I show you patent to Nielson dated August 26, 1916, No. 1,195,392. Please look at that and see if that, if those several pages of drawings there refresh your recollection.

A. I do not know, sir, I would have to look at our files. I know we bought patents covering this process, whether this is the one, I have no knowledge.

Q. 16. Would you mind stating approximately how many bottles of White Rock each year the White Rock Company sells with caps like that?

A. Well, we have sold since I have been president over 350,000,000 bottles with this cap.

Q. 17. You are using this type today?

A. Using that type today.

[fol. 241] Q. 18. Is there any reason why your company doesn't use a center spot which is secured in some other way, for instance with adhesive such as gutta percha or something else?

A. We found it very unsatisfactory; we bought this patent for that reason, we wanted to control it.

Q. 19. Do you have any trouble with center spots falling out?

A. No, no practical trouble, no, sir.

Mr. Scull: No cross-examination.

(Witness excused.)

JOHN A. JOHNSON, resumed:

Cross-examination continued.

By Mr. Scull:

X Q. 122. Mr. Johnson, I show you a letter on the letterhead of the Armstrong Cork Company, signed by the Armstrong Cork Company, Crown Division, dated April 20, 1928, and a carbon of a letter addressed to them and dated

April 24, 1928, signed by the Johnson Machine Works and I ask you first whether that is a letter which you received and second whether that is a carbon of a letter which you sent to them?

A. Yes, sir, it is.

X Q. 123. These letters, my understanding is, refer to the machines that you told us about yesterday that you sent to the Armstrong Cork Company and which proved unsatisfactory and were sent back?

A. That is correct.

X Q. 124. When you say in this letter of April 24, 1928, that, "I have got one of these machines ready" that was [fol. 242] a machine like the Cuba machine which had no pre-heating and no dial on it?

A. That is correct.

X Q. 125. And that is the one you sent to the Armstrong Company?

A. Yes.

Mr. Scull: I offer these letters in evidence.

(Marked Plaintiff's Exhibit 37 in evidence.)

X Q. 126. Mr. Johnson, you have told us that you had been in this business of making machinery for some thirty years?

A. Yes.

X Q. 127. I do not think it is quite clear just what your connection with it is. My understanding is that you are the designer and inventor of machinery that is used in the industry, is that right?

A. Yes, I am, and I also have got a machine shop where we make them.

X Q. 128. I mean you personally are the man who designs the machinery?

A. Yes.

X Q. 129. So whenever any new use comes along you are the man that does the personal work?

A. No, I got a draftsman——

X Q. 130. But you have the ideas and the draftsman carries out the ideas?

A. Yes.

X Q. 131. As a matter of fact you have designed a great deal of the machinery which is now in use in this crown industry?

A. Yes, I have.

X Q. 132. And you have patented a great many of your inventions?

A. I patented practically all of them that I can get any patent on.

Redirect examination.

By Mr. Warland:

R. D. Q. 133. I show you a patent to Clark No. 1,134,031, dated March 30, 1915, wherein it says, "Robert G. Clark, [fol. 243] assignor to John A. Johnson." Are you the Mr. Johnson in that patent?

A. Yes, sir.

R. D. Q. 134. And that machine is known as the Clark-Johnson assembling machine?

A. Yes.

R. D. Q. 135. It just puts the cashion liners into the crowns?

A. That's right.

R. D. Q. 136. Now, when you sold this machine to the Armstrong Cork Company, that Mr. Scull has asked you about, was the Armstrong Cork Company making and selling center spots at that time?

A. I cannot tell because this was—this patent went back so far as 20 years now and I sold some of them to Armstrong's almost that many years ago and they were not used for center spots, they were only used for assembling crowns.

R. D. Q. 137. What I am asking you is when you put these machines in in 1928 to Armstrong——

A. Yes.

R. D. Q. 138. Armstrong was making and selling center spots, is that right?

A. That I do not know.

R. D. Q. 139. Are you here under subpœna?

A. Yes.

R. D. Q. 140. This letter of April 24, 1928, which Mr. Scull just showed you, I notice that letter states, "I do not know if it is so or not. However, I asked McManus to send me the patent papers or the number of the patent so I could secure one of the copies, as I do not think there is any patent on the same, as I know some concerns have been

making it for years, but I want to find out, because I do [fol. 244] not want to infringe on anybody's patents." You wrote that?

A. I wrote that, yes.

R. D. Q. 141. You are here under subpœna, aren't you?

A. I am.

RALPH L. EVANS, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Evans?

A. I am connected with a corporation called Andrevan, Inc.

Q. 2. Is that company you are connected with any successor to any other company in the same line of business?

A. It is a holding company which owns and operates several companies who are manufacturing companies.

Q. 3. Does it operate a company known as the Inecto Company?

A. Yes, sir.

Q. 4. Have you been connected with the Inecto Company?

A. I have.

Q. 5. Has the Inecto Company bought any goods from the defendant in this case, Ferdinand Gutmann & Company?

A. Yes.

Q. 6. Did you have personal charge of the purchase of those goods?

A. I had control of the purchase, yes.

Q. 7. What sort of goods did you purchase from the defendant, Ferdinand Gutmann & Company?

A. Crimp caps for bottles, crown caps.

Q. 8. What material, what substance was in those bottles? [fol. 245] A. The company manufactures a hair dye, part of which is peroxide of hydrogen.

Q. 9. I show you an invoice on the billhead of Ferdinand Gutmann & Company, dated May 21, 1925, to the Inecto Company. Will you please look at that and tell me whether that calls for goods that were actually sold and delivered to the Inecto Company?

A. It does.

Q. 10. That calls for crown openers AC contract; do you know what kind of crowns were in that invoice?

A. That is not for crowns, that is for crown openers, that is for the little levers that are used to lift the crowns off the bottles.

Q. 11. I show you an invoice dated December 4, 1924, from Ferdinand Gutmann & Company to the Inecto Company; it calls for 100,000 special decoration B without tin-foil; can you tell me what that is?

A. The special decoration crowns B were crowns for bottles to contain hydrogen peroxide.

Q. 12. Do you know what sort of crowns they had on them, did they have a center spot?

A. The ones with tin-foil did have a center spot.

Q. 13. And do you know how that center spot was secured?

A. I would have to look at the invoice again.

Q. 14. Please do so.

A. This particular shipment, the center spot was slotted in the cork.

Q. 15. Like that shown in Plaintiff's Exhibit 20, the White Rock?

A. Yes.

Q. 16. I show you another cap having the letter B on the back of it. Were the crowns that you purchased from Gutmann made like that (handing to witness)?

A. Yes.

Q. 17. That is the foil flanged into the cork, the same as the White Rock cap?

A. Right.

[fol. 246] Mr. Warland: I offer that cap marked B in evidence.

(Marked Defendant's Exhibit BB in evidence.)

Q. 18. I show you another invoice from the Gutmann Company to the Inecto Company dated December 11, 1924, calling for 300,000 special decorations crown A and 95,000 special decorations crown B. What is the difference between A and B?

A. The product which is manufactured—the hair coloring must be mixed immediately before using and consists of two separate liquids. The crown A is marked with the letter A and those are applied to one type of liquid and

crown B are marked with the letter B and are applied to the bottles containing the second component of the product, the second component being hydrogen peroxide.

Q. 19. Do I understand that the bottles containing that have center spots?

A. Yes.

Q. 20. And B designates center spots?

A. No, not all of B crowns have center spots. The center spots, however, were adapted for B crowns at about the time of the dates of these invoices. They were all slotted in.

The Court: You say they were all slotted in and not caused to adhere by any glue?

The Witness: Well, with reference to these invoices that have been shown to me, they were slotted.

Mr. Warland: I offer these two invoices in evidence.

(Marked Defendant's Exhibit CC in evidence.)

[fol. 247] Q. 21. Now, I show you an invoice from Gutmann to the Inecto Company dated January 27, 1925, calling for 84,750 special decoration crowns B at $1.85 per thousand. Can you tell what kind of center spots those had and how they were secured?

A. These center spots—the center spots on these crowns were secured with gutta percha.

Mr. Warland: I offer this invoice in evidence.

(Marked Defendant's Exhibit DD in evidence.)

Q. 22. I show you another invoice dated February 5, 1925, from Gutmann Company to the Inecto Company calling for 41,500 special decoration crowns B at $1.85 per thousand. Beneath that it says, "Tin-foil paraffin coated, $1.80 per thousand." Were those goods actually sold and delivered and used by the Inecto Company?

A. They were.

Q. 23. On the dates mentioned?

A. Yes.

Q. 24. Can you tell how the center spot was secured in that shipment?

A. With gutta percha.

Q. 25. I understand it was a tin-foil spot secured by gutta percha to the crown cork?

A. That is right.

Mr. Warland: I offer this in evidence.

(Marked Defendant's Exhibit EE in evidence.)

Q. 26. I show you another invoice dated March 4, 1925, from the Gutmann Company to the Inecto Company calling for 64,200 special decoration B caps at $1.80. "B caps received from you to have tin-foil inserted. Case No. 7—one [fol. 248] case of 25,000. Case No. 8—one case of 25,000. Case No. 9—one case of 14,200. This leaves a balance of 285,800 of which 35,800 are to have tin-foil inserted." Did you receive and use those goods?

A. We did.

Q. 27. How were the center spots secured in that order?

A. Tin-foil with gutta percha.

Q. 28. Tin-foil with gutta percha?

A. Right.

Mr. Warland: I offer the above in evidence.

(Marked Defendant's Exhibit FF in evidence.)

Q. 29. I show you another invoice dated February 19, 1925, from Gutmann & Company to Inecto Company for 150,000 special decoration B caps received from you to have tin-foil inserted, $1.80, cases 1 to 6, 6 cases, 25,000 each. This leaves a balance of 350,000, of which 100,000 are to have tin-foil inserted. Did you receive those goods?

A. We did.

Q. 30. Did the caps mentioned in that invoice have tin-foil with gutta percha?

A. They did, yes.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit GG in evidence.)

Q. 31. I show you a letter on the letterhead of the Inecto Company, dated February 4, 1925, addressed to the defendant, Ferdinand Gutmann & Company, in which you state, "Attention Mr. Jesse Gutmann. This is to confirm our verbal instructions to you advising you to furnish us 250,000 B caps returned to you by lining them with tin-foil [fol. 249] gutta percha combination." Did you send that letter to the defendant?

A. I did.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit HH in evidence.)

Q. 32. I show you a letter from Inecto Company to the Gutmann Company, dated March 9, 1925, in which you say,

"Confirming our telephone conversation of this morning referring to your letter of yesterday, we do not want half an order (that is, 125,000 B caps) supplied to us without paraffin. However, we are anxious to get just as soon as possible several hundred B caps without gutta percha but with tin-foil inserted in the cork with a shallow slot where no paraffin has been applied." Did you send that letter to the defendant Gutmann Company?

A. I did.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit II in evidence.)

Q. 33. I show you an invoice by the defendant Gutmann to the Inecto Company, dated March 26, 1925, calling for 25,000 special decoration B caps returned by you to have tin-foil inserted, $1.15, containing paraffin coating without gutta percha, $28.75; did you receive those goods?

A. We did.

Mr. Warland: I offer it in evidence.

(Marked Defendant's Exhibit JJ in evidence.)

Q. 34. I show you another invoice dated March 26, 1925, from the defendant Gutmann to the Inecto Company, calling [fol. 250] for 25,000 special decoration B caps received from you to have tin-foil inserted, paraffin coated without gutta percha, $1.15, $28.75; did you get those goods from the Gutmann Company?

A. Yes.

Mr. Warland: I offer this in evidence.

(Marked Defendant's Exhibit KK in evidence.)

Q. 35. I notice that you have testified as to a great many invoices for tin-foil spots with gutta percha, and some subsequent invoices without gutta percha. Can you tell us why you changed from the center spots secured by gutta percha to the foil spot inserted in the cork like the one I showed you a moment ago?

A. The product which we were enclosing in a bottle was hydrogen peroxide. It is a chemical, a very sensitive substance to decomposition. The purpose of the tin-foil was to protect the peroxide from contamination either by the cork, the substance of the cork, or by the iron forming in the

shell of the crown, which would promote the decomposition of the product and its spoilage.

At about this time we were working with various methods of protecting this product. At first the slotted crowns with the tin-foil spot inserted proved to be unsatisfactory for a combination of reasons. The slot was too deep, the face of the bottle that formed the closing seal with the cork was too sharp. The result was that the center spot cut through in the capping machine and did not properly seal the bottle.

Because of that defect we adopted gutta percha crowns, at the same time asking the Gutmann Company to see if [fol. 251] they could not deliver us crowns in which the center spot was slotted in in a very shallow slot so the cork would not be subject to cutting out in the way it had done in the first samples. We correspondingly had the neck rings of our bottle molds changed to give a flatter contact with the liner in the cap in order to avoid the same cutting.

One reason for desiring the slotted corks rather than the gutta percha corks related to our stability tests of this product, which indicated that the corks which were slotted, or the peroxide in the bottles sealed with slotted corks was more stable than that in bottles sealed with the gutta percha insert. We could never quite understand why that was, but our experiments indicated that was true.

In addition to that the slotted corks were offered to us at about 65 cents a thousand cheaper than the gutta percha spots, and that was a compelling reason.

Q. 36. Now, as I understand your testimony, your concern first used the flanged-in center spots and they were not put in quite satisfactorily, and then you adopted the gutta percha to make the disc hold more firmly, but you did not like the gutta percha because of its possible action on the contents of the bottle, and after Gutmann had improved their method of inserting the center spot you bought the center spot inserted by flanging, is that right?

A. Yes, that is right.

Q. 37. And you have been buying from Gutmann center spot caps in which the center spot is inserted by a flange continuously from 1925 up to the present time?

A. Yes.

Q. 38. And are buying them today?

A. Yes.

[fol. 252] Q. 39. Do you mind stating approximately how many caps a year you buy, can you tell that?

A. There would be between one and two million.

Q. 40. Each year since 1925?

A. Each year since 1925, yes.

Q. 41. I hand you six invoices from the Gutmann Company to the Inecto Company, running from March 27, 1925, to May 18, 1925, and I ask you if you received these goods and if they are typical of the invoices sent you since that time by the Gutmann Company for goods sold to you since that date?

A. These are invoices for goods received and are typical of invoices received for other goods since that date.

Mr. Warland: I offer these invoices in evidence to be marked as one exhibit.

(Marked Defendant's Exhibit LL in evidence.)

Cross-examination.

By Mr. Scull:

X Q. 42. When did you first begin to market this hydrogen peroxide as part of the Inecto combination?

A. 1919.

X Q. 43. And how was that bottle originally stoppered?

A. That was first stoppered with a paraffin cork.

X Q. 44. And how long did you do that?

A. I am not sure of the exact date when that system was abandoned, but it was about 1920 or '21.

X Q. 45. And then what did you use?

A. Various types of closures were tried. There were quite a number of different types tried and finally resulting in the adoption of the ordinary crimp crown cap.

[fol. 253] X Q. 46. Composition cork or natural cork?

A. For the hydrogen peroxide, natural cork.

X Q. 47. With a paraffin coating?

A. Yes.

X Q. 48. Then when did you begin using this inserted tinfoil?

A. At about the time that we have been speaking of, the early part of 1925 or December of 1924.

X Q. 49. How long did you use that before this matter of gutta percha arose?

A. It arose very early in our discussion of that center spot.

X Q. 50. Who was it that suggested it to you?

A. Mr. Jesse Gutmann.

X Q. 51. Suggested the use of gutta percha?

A. Mr. Jesse Gutmann.

X Q. 52. Some of these invoices you have put in here apparently indicate that these spot decoration B caps were being sent back by you to Gutmann to have "tinfoil inserted." Why was that?

A. We had been buying caps from Ferdinand Gutmann & Company for some time previously and these that were sent back were caps that we had in stock. Our experiments indicated to us that the foil inserted caps were much more satisfactory than those without foil so those that did not have foil in them and were in our supplies were returned for the insertion of the foil.

X Q. 53. Can you tell for instance from these invoices or from this one particularly dated February 19, 1925, and which is marked Defendant's Exhibit GG what was the character of the tinfoil that was to be inserted there, that is to say was it to be a slotted foil or was it to be gutta percha?

A. The goods referred to in this invoice were to have foil attached with gutta percha.

X Q. 54. How do you know that?

[fol. 254] A. Because of the price. The price for the foil spot to be slotted was $1.15 a thousand and the price for the foil spot to be attached with gutta percha was $1.80.

X Q. 55. That is the only way you can tell, there is nothing else on there that indicates the difference?

A. Not on this invoice, no.

X Q. 56. I wish you would just elucidate for me the meaning of this Exhibit DD dated January 27, 1925, an invoice, particularly the part that reads, "84,750 special decoration crowns—B" and one line below that "tinfoil, paraffin coated" and then on the next line are the two prices $1.85 and $1.80.

A. The top line which says 84,750 special decoration crowns B at $1.85 per thousand is the price for the crowns without any spot and that means crown and cork liner. The price below is the additional price for the insertion of the tinfoil and reads "tinfoil, paraffin coated, $1.80 per thousand."

X Q. 57. How long did it take you to find out that this gutta percha was being, at least, the crown with the gutta percha, was being affected by the peroxide?

A. Our experiments extended over several months. However, we could determine some information indicative in character in a matter of a couple of weeks.

X Q. 58. How long was it altogether that you used these gutta percha spots?

A. Well, that was over a period of two or three months, as I recall it.

X Q. 59. As I understand, in between, and mixed up with them, you were also using the inserted spots, were you not?

A. Well, the first inserted spots were unsatisfactory from a production point of view, and we replaced the use of the [fol. 255] inserted spots or the slotted spots with the gutta percha, and we used the gutta percha in production for a period, as I recall it, of two or three months while a better system of slotting was being developed by the Gutmann Company, and while bottles with the different-shaped seat or sealing seat were being manufactured by the bottle company.

X Q. 60. Where the invoices read "Tin-foil paraffin coated," what does that mean?

A. That means that the entire foil and cork were coated with paraffin after the foil was applied.

X Q. 61. Weren't the corks that you were sending back to have these spots put on them already paraffin coated?

A. I believe they were. I might point out there was a difference in the thickness of the paraffin. Paraffin is inert to hydrogen peroxide, and at this time we were attempting to permit the liquid to contact only materials which would not react with it.

Redirect examination.

By Mr. Warland:

R. D. Q. 62. You, or at least the Inecto Company, used and sold all these gutta percha caps that were purchased from Gutmann, did it not?

A. Practically all of them except what we consumed in our experimental work.

R. D. Q. 63. With reference to a question by Mr. Scull, I show you a copy of a letter written to the Inecto Company by the Gutmann Company, dated February 19, 1925, and wish

you would be good enough to read that and see if it confirms your recollection of the transaction between you and the Gutmann Company?

A. It does.

R. D. Q. 64. Do you remember getting the original of that letter?

A. I do.

[fol. 256] R. D. Q. 65. Could you find it for us in your files and send it to us later?

Mr. Scull: I do not object to your copy.

Mr. Warland: Then I will offer the copy in evidence.

(Marked Defendant's Exhibit MM in evidence.)

Recross-examination.

By Mr. Scull:

R. X Q. 66. I assume, Mr. Evans, that all of these corks you have been telling us about were natural corks?

A. As I recall it—well, all of the center spot corks were.

Mr. Warland: You are here under subpœna, are you not?

The Witness: I am.

(Witness excused.)

Alfred C. DeLanoy, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. DeLanoy?

A. Gutta percha.

Q. 2. With what company are you connected?

A. Bishop Gutta Percha Company.

Q. 3. How long have you been connected with that company?

A. About thirteen years.

[fol. 257] Q. 4. Have you done any business or sold any goods to the defendant in this case, Ferdinand Gutmann & Company?

A. We have.

Q. 5. I show you a letter written by the Bishop Gutta Percha Company to the defendant Gutmann, dated January 6, 1925, and ask you if you recall sending that letter and if that is your signature on that letter?

A. I recall the letter having been sent out, but it is not my signature on it; it is the signature of my secretary.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit NN in evidence.)

Q. 6. I show you an invoice from the Bishop Gutta Percha Company to Ferdinand Gutmann Company, dated January 7, 1925, and ask you to be good enough to tell me what that calls for?

A. It calls for four pounds 9/10 36-inch bolt surgical tissue.

Q. 7. Just what does that mean?

A. Bolt is a designated form in which the tissue is put up in its natural condition. It is folded in what we call bolt form, so that when it is laid flat it opens out 36 inches square, and when folded it is in a form like a bolt of cloth or felt or anything of that nature, and we designate that particular style of put-up as a bolt form.

Q. 8. Were the goods covered by that invoice actually delivered to the defendant, Gutmann Company?

A. Yes, sir.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit OO in evidence.)

[fol. 258] Q. 9. I show you an invoice dated December 31, 1924, to the defendant Gutmann, which is marked No Charge. Will you please explain what that is?

A. I do not understand why there should be two samples of the same thing. One is marked one-half square yard 9/10 I. B. tissue, and a half square yard ditto. My impression of that is there were two different weights of tissue that were sent as a sample at that time.

Q. 10. Is that your first transaction with the Gutmann Company, as far as you can remember? Had you sold them goods prior to December 24th, or hadn't you?

A. What is the date of that?

Mr. Warland: I will offer this in evidence.

(Marked Defendant's Exhibit PP in evidence.)

Q. 11. This is December 21st, 1924.

A. I have some records here and I will look it up. The first sale made to them was in 1925.

Q. 12. I show you an invoice Bishop Gutta Percha Company to Gutmann dated January 16, 1925, calling for 10¼ pounds of 9-10 roll of surgical tissue. I ask if those goods were delivered by your company to the Gutmann Company at or about the date mentioned in that invoice?

A. Yes, sir, they were.

Mr. Warland: I offer the invoice in evidence.

(Marked Defendant's Exhibit QQ in evidence.)

Q. 13. I show you another invoice from your company to the defendant dated January 30th, 1925, calling for 21 [fol. 259] pounds of 9-10 roll surgical tissue and I ask you if those goods were delivered to the defendant Gutmann at or about that date?

A. They were.

Mr. Warland: I offer them in evidence.

(Marked Defendant's Exhibit RR in evidence.)

Q. 14. I show you another invoice dated February 11, 1925, calling for 9¾ pounds of 9-10 bolt surgical tissue, and to which is attached a credit memorandum. I ask if those goods were delivered on the date specified?

A. They were, yes, sir.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit SS in evidence.)

Q. 15. I hand you a batch of invoices made out by the Bishop Gutta Percha Company to the defendant Gutmann, and running from March 23, 1928, to September 27, 1928, and I wish you would be good enough to look those over and tell us whether you shipped the goods mentioned in those invoices on the dates mentioned therein, to the defendant Gutmann Company?

A. I want to qualify it by saying that the material may have been delivered a day or two before the invoices were dated, but approximately on that date would be correct.

Q. 16. Approximately those dates the goods were shipped?

A. Approximately on those dates would be correct. It was all delivered at approximately those dates.

[fol. 260] Mr. Warland: I offer these invoices in evidence as one exhibit.

(Marked Defendant's Exhibit TT in evidence.)

Q. 17. Now, do your records show whether you shipped any gutta percha to the defendant Gutmann between the dates on those invoices in 1925 and 1928?

A. No, sir.

Q. 18. You did not ship any at that period?

A. No, sir.

Q. 19. Now, since the date of this batch of invoices and September 27, 1928, have you sold them quantities of gutta percha?

A. No, sir.

Q. 20. Not since 1928?

A. No, sir.

Q. 21. Now, has your company sold gutta percha to other crown cap manufacturing companies?

A. Yes.

Q. 22. Do you remember when you first sold any to the Crown Cork & Seal Company, the plaintiff here, have you any record of that?

A. Yes.

Q. 23. What is the date?

A. In 1914.

Q. 24. Have you been selling the Crown Cork & Seal Company continuously since then, gutta percha?

A. Yes.

Q. 25. And you are here under subpœna, aren't you?

A. Yes, sir.

Q. 26. You have sold gutta percha to other manufacturers besides the Crown Cork & Seal Company and the defendant?

A. Yes, sir.

Mr. Scull: No cross examination.

(Witness excused.)

[fol. 261] GEORGE L. PETERS, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Peters?

A. We are in the gutta percha business, we coat cloths with gutta percha and similar material.

Q. 2. What company are you connected with?

A. The Peters Brothers Rubber Company, Inc.

Q. 3. What position do you hold there?

A. President and treasurer.

Q. 4. Will you tell us how long about that company has been established?

A. The original company was established by my grandfather in 1879.

Q. 5. How long have you been personally connected with the company?

A. Since 1911.

Q. 6. Since 1911 has your company coated various materials such as cloth and paper and foil with gutta percha?

A. Yes.

Q. 7. Have you ever done any business with the defendant, the Ferdinand Gutmann Company, in this case?

A. Yes, sir.

Q. 8. Have you coated any material for them with gutta percha?

A. Yes, sir.

Q. 9. I show you an invoice from the Peters Brothers to the defendant Gutmann, dated April 10, 1929, and I ask you if you can tell me what that was for?

A. Yes, sir, we coated some paper for the Ferdinand Gutmann Company and cut it into one-inch strips.

Q. 10. You coated it with gutta percha?

A. Yes.

[fol. 262] Q. 11. Do you know what kind of paper it was?

A. It was a varnish paper, what we call a brown varnish paper.

Q. 12. And is the paper which you coated for Gutmann called for in that invoice like this paper attached to Plaintiff's Exhibit 12 which I now show you?

A. Yes, it was like that material.

Mr. Warland: I offer the invoice just referred to in evidence.

(Marked Defendant's Exhibit UU in evidence.)

Q. 13. I show you three invoices from the Peters Brothers Rubber Company to Ferdinand Gutmann dated August 21, 1929, September 16, 1929 and November 1st, 1929, and I ask you to tell us whether you coated the material mentioned in those invoices and delivered to the Gutmann Company at about the dates mentioned in the invoices?

A. Yes, sir, we did.

Q. 14. Now, as I understand your testimony the Gutmann Company delivered this aluminum to you and delivered the paper to you and you coated these materials with gutta percha and cut them into one-inch strips, is that right?

A. One-inch strips, yes, sir.

Q. 15. And returned the strips coated to the Gutmann Company?

A. That is correct.

Mr. Warland: I offer the invoices in evidence.

(Marked Defendant's Exhibit VV in evidence.)

Q. 16. I show you three other invoices dated April 21, 1930, May 10, 1930, and May 15, 1930, from Peters Brothers [fol. 263] Rubber Company to Gutmann, and ask you if you coated the material mentioned in those invoices and delivered it to Gutmann at about the dates mentioned in the invoices?

A. Yes, sir, we did.

Q. 17. And was the material mentioned in the three invoices I have just handed you like this Plaintiff's Exhibit 12 I showed you a moment ago?

A. Yes, sir.

Mr. Warland: I offer the three invoices in evidence.

(Marked Defendant's Exhibit WW in evidence.)

Q. 18. I show you this invoice, dated May 25, 1929, and ask you if the goods mentioned therein were coated by the Peters Brothers and sent to the defendant Gutmann?

A. Yes, sir.

Mr. Warland: I offer this in evidence.

(Marked Defendant's Exhibit XX in evidence.)

Q. 19. I show you three invoices from Peters to the Gutmann Company, dated January 15th, April 28th and December 3rd, 1930, and ask you if the goods mentioned therein were delivered to the defendant, Gutmann Company?

A. They were.

Mr. Warland: I offer these in evidence.

(Marked Defendant's Exhibit YY in evidence.)

Q. 20. I show you four other invoices running from September 24, 1931, to November 1, 1932, as typical of other [fol. 264] invoices you sent the defendant during that time, ask you if the Peters Brothers Rubber Company coated the material mentioned in those bills and sent it to the Gutmann Company?

A. Yes, sir, we did.

Mr. Warland: I offer those invoices in evidence.

(Marked Defendant's Exhibit ZZ in evidence.)

Q. 21. Do you recall about when you stopped coating material for Gutmann?

A. About two years ago.

Q. 22. Have you coated metal foil and varnish paper like that shown in the exhibit for other crown cap manufacturers?

A. Yes, sir.

Q. 23. How long ago?

A. Coating it right up to date.

Q. 24. About when would you say you began, do you remember?

A. It was the time of repeal, the big business came in when Prohibition was repealed, that is when the real business started up in that.

Q. 25. Did you do much before that?

A. A little, but it wasn't very large.

Q. 26. Have you ever been to the defendant's factory, Ferdinand Gutmann & Company?

A. Yes, sir.

Q. 27. Have you seen them use material which your company coated with gutta percha?

A. Yes, sir.

Q. 28. What were they doing with it?

A. They were feeding it into a machine to stamp it, they cut a small disc from the foil or paper and stamped it onto the cork of a crown making spot crowns.

[fol. 265] Q. 29. Do you recall the date that you did that? Would any of your invoices refresh your recollection as to the date you saw that?

A. Yes, the first bill of aluminum that we sent down was when I saw the machine.

Q. 30. I show you these invoices that you have offered in evidence and ask you if the dates on any of those refresh your recollection as to when you were in the Gutmann plant and saw them making center spots?

A. As I remember, it was right after we delivered this lot of aluminum invoiced on May 25th that I called at the factory——

Q. 31. Which year?

A. 1929. I called at the factory and Mr. Cohn asked me to go out and look at the machine and see if there were any improvements we could make as to the material that was being run.

Q. 32. Do you think that is the first time you went to Gutmann's factory and saw this machine?

A. Yes, because that was the first occasion we had to deliver material to them to be used on that machine.

Q. 33. I show you two invoices, one dated April 3, 1929, and one dated May 15, 1929, the second of which calls for parchment paper coated with tissue. Do you know whether the goods mentioned in those invoices were coated by your company and shipped to Gutmann?

A. Yes, they were.

Mr. Warland: I offer these invoices in evidence.

(Marked Defendant's Exhibit AAA in evidence.)

[fol. 266] Q. 34. You are here under subpoena, aren't you?

A. Yes.

Q. 35. Will you produce the license agreement that you have with the Crown Cork & Seal Company?

A. Yes, right here. (Handing counsel paper.)

Mr. Warland: I offer this agreement in evidence.

(Marked Defendant's Exhibit BBB in evidence.)

Cross-examination.

By Mr. Scull:

X Q. 36. Mr. Peters, in this Exhibit UU of April 10, 1929, it calls for five yards of brown paper coated with tissue. Where did you get that brown paper?

A. It was sent to us by Gutmann.

X Q. 37. And is that true of all the other paper as specified in these invoices?

A. Yes, sir, it is.

X Q. 38. And do you know where that paper came from?

A. No, sir, I do not. I could guess where it came from, but I don't know.

(Witness excused.)

Mr. Warland: I now offer in evidence a certified copy of the File Wrapper and contents of patent No. 1,956,481.

(Marked Defendant's Exhibit CCC in evidence.)

Mr. Warland: I offer in evidence a copy of patent 1,956,481, and references set up in the answer as defense of that patent.

(Marked Defendant's Exhibit DDD in evidence.)

[fol. 267] Mr. Warland: I offer in evidence certified copy of File Wrapper and contents of patent No. 1,899,782.

(Marked Defendant's Exhibit EEE in evidence.)

Mr. Warland: I also offer in evidence at this time a book of references.

(Marked Defendant's Exhibit FFF in evidence.)

Mr. Warland: I offer in evidence certified copy of the File Wrapper and contents of reissue patent No. 19,117.

(Marked Defendant's Exhibit GGG in evidence.)

Mr. Warland: I offer in evidence a copy of the patent in suit and the references set up in the answer in one volume.

(Marked Defendant's Exhibit III in evidence.)

Mr. Warland: I offer in evidence a certified copy of the File Wrapper and contents of patent No. 1,788,260, which is the original referred to in the reissue patent.

(Marked Defendant's Exhibit HHH in evidence.)

Mr. Warland: I offer in evidence a certified copy of the File Wrapper and contents of the original application of Warth, Serial 360,895, referred to in patent 1,899,783.

(Marked Defendant's Exhibit JJJ in evidence.)

Mr. Warland: I offer in evidence a copy of the patent in suit and the references set up in the answer in patent 1,899,783.

[fol. 268] (Marked Defendant's Exhibit KKK in evidence.)

Mr. Warland: I offer in evidence a certified copy of the File Wrapper and contents in the patent to Warth No. 1,967,195.

(Marked Defendant's Exhibit LLL in evidence.)

Mr. Warland: And I offer in evidence a folder containing a copy of that patent and the references set forth in the answer.

(Marked Defendant's Exhibit MMM in evidence.)

Alvin M. Ketterer, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1: What business are you in, Mr. Ketterer?
A. In the brewing business.
Q. 2. And connected with what brewery?
A. The M. T. Goetz Brewing Company.
Q. 3. And where are you located?
A. St. Josephs, Missouri.
Q. 4. What is your position there?
A. I am superintendent of the bottling department.
Q. 5. Do you know whether the Goetz Brewery ever bought any goods from the defendant Ferdinand Gutmann Company?
A. I do.
Q. 6. Did they?
A. Yes.

Q. 7. What kind of goods did they buy?

A. Crowns.

[fol. 269] Q. 8. With center spots?

A. They have, yes, sir.

Q. 9. I show you an invoice from the Ferdinand Gutmann Company to the Goetz Brewing Company dated August 14, 1928, and I ask you to tell us what that invoice calls for and whether you actually received the goods mentioned in that invoice?

A. It calls for 100 gross of special decorated, two colors, blue, black and gold lacquered, double X quality natural cork discs faced with aluminum centers of medium width diameter, cork discs, paper backed.

Q. 10. I show you Plaintiff's Exhibit 8 and I ask you if the crowns called for by that invoice were like Plaintiff's Exhibit 8?

A. Just about like that, yes, sir.

Mr. Warland: I offer this invoice in evidence.

(Marked Defendant's Exhibit NNN in evidence.)

Q. 11. Do you know how that center spot was secured to the natural cork?

A. I don't know how it was secured but I have been told how it was secured.

The Court: Never mind what you were told, you don't know, do you?

The Witness: No, I don't know.

Q. 12. I show you a credit memorandum dated October 2, 1928, and I ask you if that refers to that same invoice which is now marked Defendant's Exhibit NNN?

A. I would not know that unless it was attached to the invoice.

[fol. 270] Q. 13. Well, it was attached before I handed it up to you. Here is the invoice.

A. Yes, it refers to that invoice.

Q. 14. Do I understand that this invoice of August 14, 1928, was the first shipment of center spot crowns that the defendant made to you?

A. That I don't remember.

Q. 15. Well, it was one of the earliest shipments?

A. One of the earliest shipments.

Q. 16. Do you remember having any trouble with one of the early shipments that the defendant sent you, in having the center spots come off?

A. Yes, quite a few of them.

Q. 17. Do you recall whether that invoice is for that shipment with which you had trouble or not—have you any way of telling?

A. I have no way of telling.

Q. 18. Now, this stamp on the righthand corner indicates —it is the stamp of the Goetz Brewery Company—what does that indicate?

A. It indicates the date it was received.

Mr. Warland: I offer this credit memorandum in evidence.

(Marked Defendant's Exhibit OOO in evidence.)

Q. 19. I show you an invoice dated August 23rd, from the Gutmann Company to the Goetz Brewing Company for 100 gross of crowns and I ask you if you got the goods mentioned in that invoice?

A. Yes, sir.

Q. 20. And you used them?

A. Yes.

Q. 21. Did those have center spots?

A. Yes.

Mr. Warland: I offer this invoice in evidence.

[fol. 271] (Marked Defendant's Exhibit PPP in evidence.)

Q. 22. I show you an invoice from the Gutmann Company to the Goetz Brewing Company dated August 31, 1928, for 25,000 gross of special crowns and I ask you if you got those goods and kept them and used them?

A. Yes.

Q. 23. And those had center spots like the exhibit I showed you?

A. Yes, sir.

Mr. Warland: I offer that invoice in evidence.

(Marked Defendant's Exhibit QQQ in evidence.)

Q. 24. I show you an invoice dated September 21, 1928, for 200 gross and I ask you the same question as to whether

the Goetz Company got those goods from the defendant and used them?

A. Yes, sir.

Mr. Warland: I offer that invoice in evidence.

(Marked Defendant's Exhibit RRR in evidence.)

Q. 25. I show you an invoice dated October 26, 1928, for 29,000 gross decorated crown discs, and ask you whether you got those from the defendant Gutmann, whether they had a metal foil center spot and whether you used them?

A. I can't tell whether we received them unless there is an acknowledgment. There should be an acknowledgment. You see there is no way for me to tell we received them.

Q. 26. Will you look at this file which you brought us, [fol. 272] Mr. Ketterer, and see if you can find what you want in there?

A. (Examining papers.)

Q. 27. Can you answer the question now?

A. Yes.

Q. 28. The answer is you did get them and use them?

A. Yes. You see the invoice does not show.

Mr. Warland: I offer this invoice in evidence.

(Marked Defendant's Exhibit SSS in evidence.)

Q. 29. I show an invoice dated October 27, 1928, from defendant Gutmann to you for 2000 gross special decorated crowns. Did they have center spots and were they used by you?

A. Unless I have the acknowledgment I cannot tell.

(Counsel hands papers to witness.)

The Witness: It is not here.

Met pursuant to recess at 2:00 p. m.; present as before.

ALVIN M. KETTERER, resumed:

Direct examination continued.

By Mr. Warland:

Q. 30. Mr. Ketterer, I hand you a bundle of papers including invoices from Gutmann to Goetz, and would you be

good enough to separate the invoices from the other papers, assuring yourself from the check marks or whatever you have there that they were received by your company, and [fol. 273] then give me the invoices and I will put them in one batch to save time.

A. Yes, sir, you just want the invoices?

Q. 31. Yes.

A. (Witness examines and separates papers.)

Q. 32. I show you a bundle of invoices running November 24, 1928, to November 6, 1934, from the defendant Gutmann to the Goetz Brewing Company. Can you state whether all the center spot crowns mentioned in those invoices were received by the Goetz Brewing Company and used by them?

A. Yes, sir.

Q. 33. I notice on April 1, 1934, there is an invoice included in this bundle in which the crowns are designated as "Stay Stuck." Is there any difference between the Stay Stuck crowns and the other crowns so far as you know?

A. I do not really know much about the method of sticking them, if that is what you mean.

Q. 34. Do you know whether there is any different adhesive used in sticking the spot on in Stay Stuck crowns than in the others?

A. I do not know.

Q. 35. Were these Stay Stuck crowns perfectly satisfactory?

A. Yes, sir.

Q. 36. Would you say whether they were any better than the gutta percha, or couldn't you say?

A. Well, if the gutta percha was what we were using before I would say they were.

Mr. Warland: I will offer this bundle of invoices in evidence as one exhibit.

(Marked Defendant's Exhibit TTT in evidence.)

Q. 37. Those invoices you have handed up, do they show all the goods you bought from the Gutmann Company dur- [fol. 274] ing those dates, or are there others?

A. That I can't say, I can't recall all the goods that we received.

Q. 38. Did the Goetz Brewing Company buy center spot crowns from any other crown manufacturers?

A. Not during that time; part of the time they did but not in the first part.

Q. 39. Am I to understand that since 1928 you bought your center spot crowns solely from the defendant company?

A. Up to I think about two years ago we did; since then we have bought others.

Q. 40. From whom have you bought the others?

A. The Crown Cork & Seal Company.

Q. 41. You are buying now as I understand it, from both companies?

A. Both companies, yes.

Cross-examination.

By Mr. Scull:

X Q. 42. The first invoice that you recognized there, Mr. Ketterer, dated August 14, 1928, that was for 100 gross?

A. Yes.

X Q. 43. What had you been using before that?

A. The natural cork.

X Q. 44. Where had you been buying those from?

A. We were buying those from Mr. Gutmann.

X Q. 45. What was the reason for this 100 gross, why only 100 gross?

A. That is hard to recall. It might have been a sample order, I cannot say.

X Q. 46. You would consider 100 gross a sample order?

A. Oh, yes.

X Q. 47. And that is the usual thing, to buy a small lot like that for test purposes?

A. Yes.

X Q. 48. Even 200 gross, you would consider that a sample lot also?

A. Yes.

X Q. 49. Purely for test purposes?

A. Yes.

[fol. 275] X Q. 50. And that is the usual thing in the brewery business?

A. Yes.

X Q. 51. Now, prior to your buying your natural cork crowns from Gutmann, what had you been using?

A. We were using natural cork.

X Q. 52. Who did you get them from?

A. The Crown Cork & Seal.

X Q. 53. Why did you go from the Crown Cork & Seal to Gutmann for the natural cork crowns?

A. It was a matter of a better grade of cork.

X Q. 54. You were having some trouble with the Crown Cork & Seal natural cork?

A. Yes.

X Q. 55. And then you went to Gutmann?

A. Yes.

X Q. 56. And did you still have trouble with the natural cork?

A. Did we?

X Q. 57. Yes.

A. Afterwards, later on we did.

X Q. 58. The natural cork that you got from Gutmann?

A. Later we did.

X Q. 59. When you began to use the spot——

A. When we changed over from the Crown Cork & Seal Company and bought from Mr. Gutmann we did not right at that time have trouble but later on trouble developed.

X Q. 60. In other words his natural cork commenced to give you trouble?

A. Later on.

X Q. 61. Do you know how it came about that you turned to spot crowns?

A. No.

X Q. 62. You don't know whether Gutmann suggested that you could overcome the trouble with his natural cork by buying a spot crown?

A. I cannot recall how it came about. I know we made a lot of tests at different times on spot crowns.

X Q. 63. Now, these spot crowns that were used, were natural cork or composition?

A. They were natural cork at first and then we went to composition.

[fol. 276] X Q. 64. Weren't spot crowns always composition cork?

A. No.

X Q. 65. You turned from natural cork to composition cork?

A. Yes.

X Q. 66. And you found that just as satisfactory as natural cork, when it had spots on it?

A. Yes.

Redirect examination.

By Mr. Warland:

R. D. Q. 67. I show you two letters on the letterhead of the Goetz Company, dated August 22nd, 1928, and August 23, 1928, written to the Ferdinand Gutmann Company. Do those letters refresh your recollection as to the date of that trouble?

A. What trouble do you refer to, the date of which trouble?

R. D. Q. 68. Mr. Scull was asking you about trouble that you had with some of the crowns?

A. Loose spots?

R. D. Q. 69. Yes.

A. Of course that was on one occasion. There were numerous occasions. That letter shows only one occasion I suppose.

R. D. Q. 70. After that occasion in 1928 did you have much trouble with your spots sticking on?

A. Yes, we had it right along.

R. D. Q. 71. How about since you obtained the Stay Stuck crowns, have you had any trouble with those?

A. No, we don't have any with those.

R. D. Q. 72. Mr. Scull spoke of a small sample shipment of 100 gross or 200 gross.

A. Yes.

R. D. Q. 73. You paid for those and used them?

A. Yes.

R. D. Q. 74. For instance that first invoice of yours for 100 gross, you paid for those?

A. Yes, they were paid for.

[fol. 277] R. D. Q. 75. Have you had any more trouble with Gutmann's crowns than anybody else?

A. Well, we used nothing but Gutmann's for a number of years and we could not say. Since then we have had trouble with others.

R. D. Q. 76. The crowns that Gutmann shipped you were sufficiently satisfactory for you to continue business with him right up to the present time?

A. Yes, but we had to recondition some of them.

R. D. Q. 77. Do the two letters that I showed you have any bearing on the question of reconditioning?

A. That letter did not (indicating letter dated August 22nd). This letter, yes.

R. D. Q. 78. I show you a circular put out by the defendant Gutmann and I ask you if you remember receiving a circular like that?

A. Yes.

R. D. Q. 79. And do you remember about when you received such a circular as that?

A. No, I do not.

Mr. Warland: I offer this circular in evidence.

(Marked Defendant's Exhibit UUU in evidence.)

Mr. Warland: I also offer those two letters dated August 22nd and August 23rd, 1928, in evidence.

(Marked Defendant's Exhibit VVV in evidence.)

Recross-examination.

By Mr. Scull:

R. X Q. 80. Referring to these letters VVV, my understanding is that your trouble with the plain cork was because it produced a taste in the beer?

A. That was the natural cork, yes, sir.

[fol. 278] R. X Q. 81. I should have said natural cork?

A. Yes.

R. X Q. 82. There is a reference here to having received a trial lot. That was the 100 gross I suppose—called a trial lot.

A. I don't know, we had so many trial lots I cannot recall.

R. X Q. 83. You would call 100 gross a trial lot?

A. It would be, yes.

Benno Cohn, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. Are you employed by the defendant, Ferdinand Gutmann & Company?

A. I am.

Q. 2. How long have you been there?

A. Since 1920.

The Court: What is your position?

The Witness: Secretary and in charge of production and purchases.

Q. 3. Does the defendant, Ferdinand Gutmann, make goods other than center spots?

A. Yes.

Q. 4. What other kind of goods do they make?

A. Make crowns without center spots, both with natural and composition cork. We make other bottle caps such as screw caps and special caps, milk caps, water caps and caps for certain special purposes; and metal boxes and miscellaneous metal stampings, small metal boxes, such as pill boxes.

[fol. 279] Q. 5. About what proportion is the crown cap part of the business in comparison with the other business?

A. Approximately one-third.

Q. 6. Of your bottle crowns for beverage purposes, about what proportion are center spots and what proportion crowns without the center spots?

A. In late years most of them have been with center spots, I should say probably ninety per cent.

Q. 7. Of the center spots you make what percentage would you say are metal-foil center spots and what percentage glazed paper center spots?

A. About 90 to 95 per cent. are metal-foil spots, and five to ten per cent. paper spots.

Q. 8. Are these crowns made under your supervision?

A. Yes.

Q. 9. Have you actual personal knowledge of the beginning of manufacture of center spot crowns by the defendant company?

A. Yes.

Q. 10. And you have had charge of the details of manufacturing?

A. I have had general supervision of the manufacturing and purchasing. Our superintendent, Mr. Rasmussen, is on the floor as master mechanic and shop superintendent. I am familiar with the process of manufacture.

Q. 11. Who else is connected in the manufacturing end of the company besides yourself?

A. Mr. Rasmussen, our superintendent.

Q. 12. Have you got anybody else, any chemists or anybody else?

A. Mr. Eisen.

Q. 13. What is his position?

A. In charge of research and development work, and in charge of cost calculation under my supervision.

Q. 14. Do you know when the defendant Gutmann first made the center spot crown?

A. Yes, in 1924.

[fol. 280] Q. 15. You heard Mr. Evans testify as to the purchases by him from you of center spots in 1924 and 1925?

A. I did.

Q. 16. Both of the gutta percha and metal foil center spots?

A. Yes.

Q. 17. Did you have charge of the manufacture of those goods?

A. Yes; as I say, I had general supervision; Mr. Rasmussen is directly in charge of the floor.

Q. 18. Were the goods made on the dates mentioned in those invoices produced by the Inecto Company, for instance?

A. Yes, they were shipped on those dates and made shortly before.

Q. 19. There has also been evidence given by Mr. Peters and Mr. DeLanoy as to the sale of gutta percha and metal-foil to your company, and by Mr. Macauley of the Reynolds Metal Company, and invoices were produced here. Were those goods bought on the dates testified to by those witnesses?

A. Yes.

Q. 20. And the goods were bought and paid for on the dates mentioned in those invoices?

A. That is right.

Q. 21. And the center spots were made and shipped at that time?

A. Yes; that merchandise was bought for the manufacture of center spot crowns.

Q. 22. Can you tell us as to the method of making these caps?

A. Yes. To start in, I think in 1924 we first made them for the Inecto Company, and they were made by scoring or cutting a groove, circular groove, in the cork disc in the crown, and pressing the edge or the flange of the center spot.

Q. 23. How was that groove cut, did you have any special die?

A. Yes.

[fol. 281] Q. 24. Where did you get that die?

A. We got that die from Berthold Nagy.

Q. 25. Was that the die Mr. Nagy produced an invoice to you people for?

A. Yes. The die was first delivered without the cork scoring mechanism with the idea of inserting the center spots by another method. About three weeks later, I think it was, the invoice shows the date, the die was altered and the cork scoring cutting knife was added. Shortly after that we made and shipped crowns with center spots of the Millis type, the White Rock type, to Inecto.

Q. 26. Could you say approximately how many you shipped at first of that Millis type, we will call it?

A. We shipped about 100,000 or a little more, I think, in December, 1924.

Q. 27. That is, with the cork scored and the disc inserted in the score in the disc?

A. Right.

Q. 28. Were those satisfactory to the Inecto people or were they not?

A. They were not.

Q. 29. Why not?

A. There were two reasons. One is we did not have satisfactory control over the cork scoring operation, with the result that in a percentage of the crowns the cork, instead of being scored, only part way through, was scored all the way through or almost all the way through. The other reason was that the bottles on which those crowns were used had rather wide mouths and rather narrow sealing surfaces, and the combined result of those two conditions was that in a percentage of the cases the entire center of the cork disc with the tin-foil center during the crowning operation,

when the cap was applied to the bottle, was forced into the neck of the bottle, and that defeated the purpose of the cap.

[fol. 282] Q. 30. Then when you found that that method was not satisfactory, what did you do, how did you fasten the center spot on then?

A. We then changed to fastening the center spot by means of gutta percha.

Q. 31. Where did you get your gutta percha?

A. From the Bishop Gutta Percha Company.

Q. 32. Where did you get your foil from at that time?

A. We got the foil from the Beechnut Foil Company; they were in our building.

Q. 33. Was it metal foil or was it tin-foil or aluminum-foil?

A. Tin-foil.

Q. 34. And how did you fasten that on?

A. The gutta percha was mounted to the tin-foil for us by the Beechnut Foil Company. They delivered the mounted material to us in ribbons either 1 inch or 1⅛ inches wide. We furnished the gutta percha to the Beechnut Foil Company, having bought the gutta percha from the Bishop Gutta Percha Company.

Q. 35. These ribbons one inch wide, do I understand that they consisted of a strip of metal foil with a coating of gutta percha on the underside secured and adhered to the foil?

A. Yes.

Q. 36. How did you cut your center spots out of those?

A. The center spots were cut out and inserted in a modified or altered Clark-Johnson type crown assembling machine.

Q. 37. Now, what do you mean by a Clark-Johnson type assembling machine, do you mean the machine that simply puts the lining in the metal cap?

A. Yes, a machine widely used in the business.

Q. 38. That machine simply secures the cork disc by some sort of an adhesive in the shell, is that right?

A. Right.

[fol. 283] Q. 39. Continue.

A. We altered that machine by providing a gas heater over the chute along which the previously assembled crown with the cork discs in them passed from a hopper to a rack or feeding mechanism that carried the crowns from one

station to another in the machine. The upper surface of the cork discs were heated by a gas flame on their passage down that chute. The paper feeding and cutting mechanism for feeding and cutting the paper collet that had been used in the Clark-Johnson assembling machine was removed, and the tin-foil cutting punch was substituted.

Q. 40. And where did you get that tin-foil cutting punch?

A. From Nagy.

Q. 41. On the date mentioned in the invoice put in evidence here yesterday?

A. That is right.

Q. 42. Continue.

A. A feeding mechanism for feeding the adhesive paper was changed to make it suitable for feeding the gutta percha coated tin-foil.

Q. 43. Then what happened to the cap?

A. The cap was positioned underneath the die that Nagy had furnished us. The tin-foil with the gutta percha coated on its underside was fed to that die. A punch descended and sheared the center spot from the ribbon of the gutta percha coated tin-foil.

Q. 44. Excuse me, was that punch hot or cold?

A. That punch was cold and positioned the center spot centrally in the crown on top of the pre-heated cork disc.

Q. 45. Then what happened?

A. From there a rack fed the cap past a position where there was another gas flame on the machine. That gas flame belonged on the assembler, the cork disc assembler in its [fol. 284] original condition and we did not remove the gas pipe. Whether we lit the gas at that stage or not I don't recall, I would say that if it proved necessary we heated the spot crowns after the center spot was applied and if we found that it was not necessary we did not light the gas flame and heat it. I am not sure. After that stage the cap passed the cork-inserting head on the assembling machine—the original assembling machine, which had been rendered inoperative, as we were not assembling cork discs.

Q. 46. Then where did the cap go?

A. It then went to a collecting drum consisting of a series of plungers which were actuated by a fairly heavy spring pressure that held the assembled cap with the center spot on it, under pressure for several seconds, about 12 I think

it was, until the center spot and gutta percha had cooled and the gutta percha had set.

Q. 47. And then what happened to the cap?

A. It was discharged on to a sorting table that carried the cap past the operator of the machine who would pick out the defective caps and from there to a packing case or carton.

Q. 48. Approximately about how many crowns with gutta percha centers did you make in 1924 and 1925, for the Inecto Company?

A. Approximately 340,000 of those caps.

Q. 49. And that covered a period of what dates?

A. From the latter half of January to the end of March about.

Q. 50. March of 1925?

A. 1925, that's right.

Q. 51. In the meantime had you made any effort to improve the method of putting the flange center spot into the cap?

A. Yes, we had.

[fol. 285] Q. 52. And did you succeed?

A. Yes.

Q. 53. And have you since then sold caps to the Inecto Company with a center spot in which the spot is secured to the cork disc by a flange on the center spot?

A. We have.

Q. 54. Do you know how many you have sold since 1925?

A. Over 20,000,000 caps.

Q. 55. And are you selling them today, with the same type?

A. Yes.

Q. 56. Have you had any complaints from them about the center spot coming out?

A. No.

Q. 57. Now, as I understand you you discontinued making gutta percha caps some time in March of 1925?

A. That is right.

Q. 58. When did you next make bottle caps with center spot crowns secured by gutta percha?

A. In 1928.

Q. 59. When in 1928?

A. In the Summer of 1928.

Q. 60. And who did you make those for?

A. The Goetz Brewing Company.

Q. 61. Is that the company that Mr. Ketterer just testified here that he was connected with?

A. Yes.

Q. 62. And how did you secure the center spot in its position on the crown cork in these '28 caps that you sold to the Goetz Brewing Company?

A. In the same, substantially the same method that we had used for the Inecto people except that at first the gutta percha and the metal foil were fed in separate ribbons.

Q. 63. Just a minute, by feeding in separate ribbons do you mean in the manner set forth in Fig. 3 of the Warth patent 1,899,783?

A. Yes. The machines were somewhat more refined when we were operating successfully, after our first experimental [fol. 286] work, on the Inecto machine because the quantities were larger.

Q. 64. And how long did you continue using that method of feeding the strip of gutta percha and the strip of foil into the machine simultaneously?

A. Something less than a year. As soon as I could get a convenient cheap and satisfactory source of supply for the mounted material—gutta percha mounted to an aluminum foil or paper as the case may be—I bought that material.

Q. 65. And is that the material which Mr. Peters testified about this morning?

A. Yes.

Q. 66. As I understand you that material was foil, one side of which was coated with gutta percha?

A. That is right.

Q. 67. And was the material cut into strips by you or was it cut into strips for you by the Peters Brothers?

A. It was cut into strips for us by the Peters Brothers.

Q. 68. And it came in spools approximately one inch wide?

A. That is right.

Q. 69. As I understand you you fed that material into the spotting die or whatever you call it on the machine?

A. That is right.

Q. 70. Now, going back to this first shipment to Goetz in 1928, when you began to make crowns for the Goetz Company, what was the method that you employed then?

A. The first machine that we obtained for the purpose, we obtained from the Johnson Machine Company.

Q. 71. Just a minute, was that the machine in Johnson's invoice of July 31, 1928, which I now hand you?

A. That is it. That covers the delivery of a machine on July 17th.

Q. 72. Now, will you describe that?

[fol. 287] A. That machine was, I would say, substantially like the photograph that was introduced before that I saw. It had a feeding mechanism, a hopper, into which the assembled crowns, that is, the metal shell with the cork disc assembled in it and stuck in it, into which these crowns were dumped. The crowns were fed from that hopper cork side up down a chute onto a dial and into a rack feeding mechanism. This mechanism carried the crowns past several plungers. The first one or two, I do not remember the exact number of plungers, the first one or two were electrically heated. The next one was not really a plunger, it was a center spot cutting die. That, if I remember correctly, had a heating element when Johnson sent us the machine, but we promptly took it out.

Q. 73. Why did you take it out?

A. Because it didn't work right.

Q. 74. Just a minute. As I understand you, then, in this shipment to the Goetz Company you used a cold cutting die?

A. Yes.

Q. 75. For cutting the center spot?

A. Yes.

Q. 76. Have you ever used a cutting die which was heated?

A. No.

Q. 77. All right, go ahead.

—. The crown was next fed to a position underneath this cutting die. The strip of aluminum foil which we used and a separate strip of gutta percha which we used on that date were fed by a roll feed to this die where the center spot was cut out and deposited centrally on the pre-heated upper surface of the cork disc in the same manner that we had done for Inecto in 1925. From there the crown was fed by the rack to one or more additional plungers which, to the best of my recollection, were cold.

[fol. 288] Q. 78. This machine which you bought called for by this invoice of July——

A. I have the July, 1928, invoice.

Q. 79. Did the machine which you bought from Johnson, according to this invoice, did that have any collecting drum on it?

A. No, it did not.

Q. 80. Do I understand that when you made a certain number of crowns on this machine of the invoice of July 31, 1928, that you shipped them to the Goetz Company?

A. Yes. We had to work with the machine a little bit before we got it in condition that we thought was working properly, and early in August, I think it was, you have a record there, we shipped them 100 gross by express in order to get their approval before we manufactured large quantities.

Q. 81. What did you hear from them about that shipment of 100 gross?

A. Plenty; they were no good.

Q. 82. Were they satisfactory or were they not?

A. No.

Q. 83. Why weren't they satisfactory?

A. The spots fell off, the center spots fell off in their cleaning machine and in their crowning machine.

Q. 84. Between the date of that invoice you have there, is that July 17th?

A. The shipment is July 17th.

Q. 85. And the invoice which you next got from Johnson, had you ordered any machines from Johnson like that shown in that first invoice?

A. Yes, we had. When we made the first 100-gross test shipment, the crowns looked to us as though they would be satisfactory, and we wanted to get into production as quickly as possible, and when we thought we had a satisfactory product we ordered two more of those machines from the Johnson Machine Works.

[fol. 289] Q. 86. When you got complaints from the Goetz Company what did you do?

A. Mr. Rasmussen visited Mr. Johnson and we cancelled the order for those two machines and ordered instead a machine that had a collecting drum with pressure plungers.

Q. 87. I show you Defendant's Exhibit P, which is a bill dated August 28, 1931, from Johnson, calling for one tinfoil machine with standard drum. Did you get that machine from Johnson at about the date of the bill?

A. Yes.

Q. 88. After you got this machine called for by Exhibit P, did you have any more trouble with the spots staying on?

A. No, not appreciably, no more than you would get in ordinary manufacturing troubles.

Q. 89. Did you continue to ship the Goetz Company center spot crowns made on that machine covered by the invoice dated August 28th, Exhibit P?

A. Yes, for several years.

Q. 90. Did you get additional machines from Johnson?

A. We did.

Q. 91. In accordance with the bills shown in this Exhibit Q?

A. Yes.

Q. 92. Would you mind describing those machines? Are those the machines of the Johnson patent, as you understand it, No. 1,852,578?

A. Yes, the center spot inserting mechanism conforms with that.

Q. 93. Did they have any additional features than the center spot?

A. Yes, they had in addition to the mechanism for inserting the center spot, that was the same as on the previous machine, the mechanism for inserting cork discs into the metal shells after the manner of the Clark-Johnson type assembling machines that had been used in the industry prior to that time.

[fol. 290] Q. 94. Now, I show you an invoice from Johnson, dated March 18, 1931, marked Defendant's Exhibit X. Can you tell me what that is?

A. That is an invoice covering work that Mr. Johnson did for us on the first spotting machine that he delivered, the one covered by the invoice showing delivery July 17th. He changed that machine entirely into a machine for an entirely different purpose, for assembling some liners in some special caps.

Q. 95. Then, as I understand you, this first machine you bought on July 17th, without the drum, you only used for making center spots for a short time until you found they wouldn't stick, and then you got one with a drum, is that right?

A. That is right. I might add, later we salvaged what we could from the machine.

Q. 96. Now, Mr. Ketterer of the Goetz Brewing Company testified this morning as to sales of center spot caps made by the Gutmann Company to his brewery. Did you have charge of the manufacture of all those caps?

A. Yes.

Q. 97. And you know they were shipped on the dates mentioned in those invoices?

A. Yes.

Q. 98. Have you got factory orders or any books of your own besides those invoices showing the dates of shipment?

A. Yes.

Q. 99. Of these various goods, both to the Goetz Company and the Inecto Company?

A. Yes, we have our manufacturing copies of orders showing the dates of shipment, quantities, and so forth, and we have somewhere here the office copy of our orders which go into our sales binders and form our sales book, our day book.

Q. 100. What is your method of keeping track of the manu- [fol. 291] facture and shipment of goods in your company?

A. When an order is received it is typed by the order clerk and five copies are usually made. The first copy is our office copy and stays in the order clerk's file until shipment is made.

The second copy, a pink copy order goes to the factory and is used for the manufacture and shipping of the order.

The other is the third copy, the blue copy, which is used for keeping track of production, for our production report and it is used that way at the present time at any rate, and the fourth copy is the acknowledgment that is sent to the customer and the fifth copy, where necessary, is made for the salesman who gets the order.

Q. 101. Now, have you got your factory orders and shipping records of all these goods—of these center spot caps that were shipped both to Inecto and the Goetz Brewing Company?

A. I do not know that we have orders covering all of them, but we have orders covering the earliest ones here.

Q. 102. I do not mean orders from the customers——

A. I mean our orders. I do not believe I have here everything from the time we started on down to date, every single shipment but I believe you will find the earliest ones there, and probably typical shipments of later dates.

Q. 103. Now, when you began the manufacture of center spot crowns in 1924, did you know of your own knowledge of center spot crowns being made by other manufacturers?

A. Yes, we did.

Q. 104. And did you see them on the market?

A. Yes.

Q. 105. Did you actually see the crowns themselves?

A. Yes, I recall seeing the White Rock crown which was, [fol. 292] of course, quite common and in the plant of the Kalak Water Company, who were at that time on the lower floor in our building at Bush Terminal, we saw center spot

crowns both of the White Rock type and with center spots stuck with gutta percha to the cork disc.

Q. 106. Are you the patentee and inventor of the method shown in the Benno Cohn patent that is in suit here as a basis for a defense counterclaim, patent No. 1,921,808?

A. Yes, sir.

Q. 107. Now, what is the difference between the method described in that Cohn patent to you and the method that had been previously practiced by the Gutmann Company?

A. In the previous practice we assembled the cork disc into the metal shell of the crown in one operation, in the manner that was well known and commonly used in the industry at that time.

Q. 108. That would be what is known as the Clark-Johnson machine?

A. Yes, and then in a subsequent operation in a different machine or in some instances in the same machine at a different time, we inserted the center spots on to the cork discs.

Under the method of the patent issued to me the metal shell was dumped into a hopper and the shells came down a chute from the hopper, right side up—that is open side up——

Q. 109. You mean the empty shells, of course?

A. The empty shells, to a dial and from the dial they went into a rack feeding mechanism which carried the crown into successive positions.

In the first position a drop of adhesive or an adhesive treated paper collet was inserted into the shell. After that the shell was carried past a gas flame which heated the shell [fol. 293] and the adhesive inside of it. After that the shell was placed under a cork inserting head which inserted the cork disc into the shell on top of the heated adhesive. Then, the shell, with the cork disc in it, was passed under a heating mechanism which at one stage was a localized gas flame and at another stage of our manufacture consisted of electrically heated plungers by which the upper surface of the cork disc was heated. Then, the crown was placed under a center spot cutting die.

Q. 110. Was that a hot die or a cold die?

A. That was a cold die, it was just about the same as the die that Nagy had furnished us in 1924, that cut out from a ribbon and inserted centrally on the pre-heated cork disc, the center spot. The material of the center spot

consisting of an adhesive coated with gutta percha or other adhesive, spot material, it might be metal foil or paper, that was fed to the cutting die by a roller feed.

From there the crown, with the cork disc and center spot in it was carried past additional heating plungers to supply additional heat if we found it necessary and we found it convenient usually, and from there to a collecting drum where the assembled crown was held under heavy pressure while the entire crown cooled and the two adhesives set, that is the adhesive between the metal shell and the cork disc and the adhesive between the cork disc and the center spot.

Q. 111. That is, you got the greatest amount of pressure, the pressure necessary to adhere both lining to the shell and spot to the lining—where did you get that pressure?

A. Under the plunger in the drum, the collecting drum. The crown stays there for about eleven seconds under that pressure.

[fol. 294] Q. 112. And do you know approximately what that pressure is?

A. Yes, it is about 12½ pounds. We had a test made and I have a report somewhere from a testing laboratory on one of the springs actuating the plunger in the drum.

Q. 113. And that plunger, as I understand your testimony, is the only step in the method where a great deal of pressure is applied?

A. That is right.

Q. 114. Didn't the defendant, Gutmann, so far as you know, in making center spot caps at any time apply simultaneously both heat and pressure to the spot?

A. No.

Q. 115. Now, as I understand you, when those caps come out of the rack after lining in the spot, they are of course hot, aren't they?

A. Yes.

Q. 116. Where are they cooled off?

A. In the collecting drum under the pressure of a plunger. That drum is kept as cool as possible by an air blast.

Q. 117. That is, you depend on artificial cooling means rather than the temperature of the room, or in addition to the temperature of the room?

A. Yes, in addition to the temperature of the room; that is especially useful in the summer time.

Q. 118. Do you know when the defendant company first used this 4620 adhesive?

A. Yes.

Q. 119. When was that?

A. In May, 1932, I would say we used it at that time, but I do not say that we used it for center spot crowns at that time, but we used it.

Q. 120. What were the circumstances that first brought to your knowledge this 4620?

A. We used, had used for quite a variety of adhesive in connection with our Filmaseal.

[fol. 295] Q. 121. That Filmaseal has something to do with center spots?

A. No, it is a kind of screw cap. A salesman who called on us from the duPont Cellophane Company informed our Mr. Eisen of an adhesive that was made by the parent company, the duPont Company, that was heat-fusible, and that he thought might be useful to us in connection with that work. Mr. Eisen wrote to the duPont Company, inquiring in regard to it, and received a letter from them telling about——

Q. 122. Just a minute. I show you a letter from the duPont Company, dated May 12, 1932, and ask you if that is the letter you are referring to?

A. Yes.

Mr. Warland: I offer that in evidence, if your Honor please.

The Court: Received.

(Marked Defendant's Exhibit WWW in evidence.)

Q. 123. Did you buy at that time, or about the date of that letter, any of this 4620 adhesive?

A. At that time I believe we received only a sample lot from duPont.

Q. 124. What do you call a sample lot, how much?

A. I think it was a gallon, I am not sure, it might have been less.

Q. 125. Did you try it for use on your Filmaseal caps?

A. We did.

Q. 126. Was it satisfactory?

A. It did not answer, it was not satisfactory for any demand that we had at that time.

Q. 127. Why not?

A. It required, after its application, that it be allowed to [fol. 296] dry and then be heated, and then cooled under pressure in order to stick properly. And we did not have any demand in connection with the Filmaseal for an adhesive of that nature. We continued some experimental work in connection with it, though.

Q. 128. When was the matter of using that 4620 for adhering center spots first taken up?

A. I would say it was taken up sometime between May, 1932, and January or early February, 1933, and to the best of my recollection it was in the fall of 1932 that we paid fairly active attention to using it for crowns.

Q. 129. What did you first do in its application to center spots?

A. Mr. Eisen made samples, coated material and cut out——

Q. 130. Did you see that yourself?

A. Yes.

Q. 131. It was done with your knowledge and you saw them?

A. Oh, yes, yes.

Q. 132. How were they cut, by hand or how?

A. They were cut either by hand or with a small die, or with an experimental die in the laboratory, and inserted by hand on the cork disc.

Q. 133. When did you first run that 4620 in a machine?

A. In February, 1933.

Q. 134. That was on an experimental run?

A. Yes, there were a few gross of crowns made and a report made by Mr. Eisen on the subject at the time.

Q. 135. What did you do to test the suitability of that material as an adhesive for center spots?

A. We put it through several tests. We first, of course, examined the crown to pull the spots off to see how tight they stuck and compared them with the gutta percha we had been using as an adhesive. At a later time, slightly later time, we took a batch of crowns, several gross of [fol. 297] crowns, and put them in a rotating drum and tumbled them in order to simulate the action of the hopper of a crown machine. We applied the crowns to bottles, and removed the crowns to see that the center spots were properly adhered. We applied the crowns to other bottles and tested those bottles at pasteurizing temperatures, and then cooled them down, examined the center spots to see that

they were properly adhered. We left the—left crowns with center spots made with the 4620 adhesive alongside of other crowns made at the same time——

Q. 136. With what?

A. What is that?

Q. 137. With what were the other crowns made?

A. With gutta percha, and left them for a period of time and compared the strength of the bond of the center spot on the cork disc on the two different kinds of crowns after a considerable period of time, and more particularly we did the same thing and heated the two sets of crowns to a temperature of approximately 100 degrees Fahrenheit to simulate summer conditions, which were particularly severe on that.

Q. 138. What did these tests demonstrate? Did they demonstate that the 4620 was any better than the gutta percha or as good as gutta percha or not so good?

A. It demonstrated to us it was just about as good immediately after the crowns were made, and that after a period of time, particularly when subjected to warm conditions, it was appreciably better, the gutta percha deteriorated.

Q. 139. Why was it better, did the center spots stay on better with this 4620 than with gutta percha under the same conditions?

A. Yes, the center spot in the gutta purcha crowns deteriorated considerably.

[fol. 298] Q. 140. Now, did you make any sample shipments of center spot crowns in which the spot was secured by the 4620 as an adhesive?

A. Yes.

Q. 141. And who did you make those to and when?

A. In May of 1933 and early June of 1933 we sent our representative to two different breweries with sample lots of ten and twelve gross each and requested the bottling departments of each of those breweries to run those crowns in the same manner as other crowns and apply them to bottles and put them through the pasteurizer.

Q. 142. Can you give the names of those breweries?

A. Yes, the West End Brewery of Utica, New York, and the Rubsam & Horrmann Brewery on Staten Island.

Q. 143. Go ahead.

A. We received reports that the crowns were satisfactory

and in connection with one of those tests we got back a dozen or two samples of bottles of beer.

Q. 144. And did you do anything about testing the bottles in which the center spot was secured by the 4620, for pasteurization?

A. Yes.

Q. 145. What did you do about that?

A. We did three things.

Q. 146. What were they?

A. First we filled some bottles with water in our own laboratory and as I believe I stated a minute ago we heated them to pasteurizing temperature and allowed them to cool, and examined them.

Secondly we made the trial shipments that I just described to the two breweries and in the course of the use of those crowns they were applied to bottles and the bottles were sent through the pasteurizer in regular fashion.

[fol. 299] The third thing we did was to send samples of crowns with center spots adhered with 4620 and samples of crowns with center spots adhered with gutta percha to the Schwartz Laboratories in New York who are recognized as a brewery laboratory and we asked them to test the two types of crowns, on beer, and give us a report as to the comparison between the two, as to their suitability for use on beer, and that included of course pasteurization.

Q. 147. Have you got that report of the Schwartz Laboratories?

A. Yes.

Q. 148. Does that refer to 4620 or is there any way of telling from that report what the adhesive was?

A. The report does not refer to 4620 but there is a way of telling.

Q. 149. Did the laboratory know whether it was 4620 or not?

A. They did not know, they only knew that we shipped them two types of crowns.

Q. 150. And these two trial shipments were made to separate breweries, the ones that you just testified about, there was no way that those breweries could tell what the type of adhesive was, could they?

A. They could not.

Q. 151. No one could tell by mere inspection what the type of adhesion was?

A. No, I would say not, especially if he does not pull the center spot off.

Q. 152. Now, when did you get your center spot crowns shipped commercially in which the center spot was secured by 4620?

A. In July of 1933, early July.

Q. 153. And who was the first shipment to then?

A. The first shipment was to the Peter Hand Brewing Company in Chicago.

Q. 154. How big a shipment was that?

A. 100 gross.

[fol. 300] Q. 155. When did you make the next one?

A. The next one was made to the Cerat Brewing Company in Nashville, Tennessee.

Q. 156. When was that?

A. Also in July of 1933. One was early and the other a week or ten days later.

Q. 157. How large were these last two shipments you referred to?

A. They were each about 100 or 150 gross, perhaps 200 gross.

Q. 158. Well, after you found this 4620 was satisfactory as an adhesive did you discontinue the use of gutta percha?

A. As quickly as we could with due regard for our commercial requirements and necessity of keeping on with manufacturing. That is with reference to metal foil.

Q. 159. Why didn't you use 4620 for glazed center spots?

A. We have not found it worked satisfactory with varnished paper.

Q. 160. Well, why doesn't it work, have you any idea?

A. I have, but that is a theory.

Q. 161. Well, you don't know?

A. Yes.

Q. 162. Did you ever see any officers of the plaintiff company, the Crown Cork & Seal Company at the defendant's factory?

A. Yes.

Q. 163. When was the first time you saw them there?

A. That was late in April of 1933.

Q. 164. And who was there at that time?

A. Mr. Fusting and Mr. Nagle.

Q. 165. And did you talk with them at that time?

A. No, I did not, I saw them come in and my father spoke with them.

Q. 166. Now, when did you at a subsequent time see anybody connected with the plaintiff company, at defendant's plant?

A. On August 8th, 1933.

[fol. 301] Q. 167. Who was there then?

A. Mr. Fusting and Mr. Darby their counsel and Mr. Wentworth our patent attorney.

Q. 168. Can you state the substance of the conversation that occurred on August 8, 1933, between the people who were there. Who else was there representing your company?

A. Mr. Ferdinand Gutmann, myself and while we were in the factory, Mr. Rasmussen.

Q. 169. At that call on August 8th, 1933, did the plaintiff see your method of making caps?

A. Yes, that is what they came for.

Q. 170. And were they shown a machine for making caps for commercial production?

A. Yes.

Q. 171. And what materials were you using at that time?

A. For the center spot?

Q. 172. What adhesive?

A. No. 4620.

Q. 173. What was the material, foil or paper?

A. Aluminum foil.

Q. 174. And were samples given to Mr. Darby and Mr. Fusting, of the material coated with No. 4620?

A. Yes.

Q. 175. And did you give them any caps in which the center spot was secured by No. 4620?

A. We did.

Q. 176. Now, at this date of August 8th, 1933, what method of making caps were you using, were you making them according to the so-called Benno Cohn method or were you making them on the old Clark-Johnson machine?

A. We were making them according to the Benno Cohn method.

Q. 177. And was any remark made by either Mr. Fusting or Mr. Darby as to that method?

A. Yes, they stated that they had never seen that method used before.

[fol. 302] Q. 178. Did they inquire whether it was patented or not?

A. They did.

Q. 179. What did you tell them?

A. We told them that it was. They asked if they could have the number of the patent and they were told that the patent was just being issued that day.

Q. 180. Was anything said by either Mr. Fusting or Mr. Darby about buying the patent?

A. Yes, in the course of the conversation after we had returned from the shop, into the office, after inspecting the machine in which the crowns were being made, Mr. Darby inquired as to whether we could be interested in selling our patent and I answered that we would of course if we were paid enough for it.

Q. 181. And were any figures mentioned?

A. Yes, I had said that I had not given the matter a thought and it was an offhand answer. Mr. Darby wanted to know whether we would be interested in it for $5000 for the patent.

Q. 182. What did you say to that?

A. I said no.

Q. 183. What else did he say?

A. Then he asked if we would be interested in $10,000 and I said no. Then, as near as I can recall he remarked, "Well, of course, if we would pay you a million dollars you would, but we wanted to know if you had any figure in mind," and I replied that I did not, that I had not given the matter a thought, that I was talking offhand and that my offhand opinion was in view of the fact that the value of the method lay largely in effecting a saving in manufacture the logical arrangement would be a royalty of a certain amount per gross of crowns which would be a fraction of that saving.

Q. 184. And did you adopt any trademark for center spot [fol. 303] crowns in which the center spot was secured by this 4620 adhesive?

A. Yes.

Q. 185. And what was that trademark?

A. We called it "Stay Stuck."

Q. 186. And did you send out any circulars or literature to that effect?

A. Yes.

Q. 187. I show you Exhibit UUU, is that one of the circulars you sent out?

A. Yes.

Q. 188. When did you send that out?

A. About September, 1933.

Q. 189. When was the first time that you personally knew of any charge of infringement by the Crown Cork & Seal Company against you of any of its patents?

A. In March, 1933, I believe it was.

Q. 190. Did they subsequently write or call and ask you to join in a license agreement?

A. Yes.

Q. 191. You never signed that license agreement, did you?

A. No, we did not.

Q. 192. Have you tabulated the gross shipments of crowns made by the Gutmann Company from 1924 to 1934?

A. Yes, through 1934. From 1924, no; I have since 1928.

Q. 193. All right, let us see what you have got there.

A. Yes, right here. Here you are.

Q. 194. This does not include the Inecto, does it?

A. Yes, that does.

Q. 195. Only from 1928?

A. Yes. If you want the shipments to Inecto, I think we could dig it out from 1924 to 1928.

Q. 196. You haven't got the shipments to Inecto from 1925 to 1928 on this list?

A. That is right.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit XXX in evidence.)

[fol. 304] Q. 197. Now, if you are handed the factory orders and shipping orders for these various shipments to the Inecto and Goetz and other people can you identify them?

A. Yes.

Cross-examination.

By Mr. Scull:

X Q. 198. First taking up this 1924 incident for Inecto, is the machine which you used at that time still in existence?

A. Not in the shape that we used it at that time.

X Q. 199. Any part of it?

A. Yes.

X Q. 200. What part of it?

A. I would say the body of the machine, the cork scoring knife and inserting mechanism as we used it to produce the White Rock type of cap is still in existence today. Some of the feeding mechanism has been changed.

X Q. 201. Just what did you do? I am interested now naturally in the gutta percha strip, attachment. How did you have the feed mechanism for that strip?

A. To the center spot cutting punch?

X Q. 202. Yes.

A. That was a mechanism consisting of reciprocating fingers that pulled the strip through the cutting die, or, rather, over the die and under the punch through the guide in the cutting die so as to feed a suitable portion of the strip material to the die at the stroke when the center spot was punched out. These fingers opened and closed at appropriate motions so that on the forward movement of the fingers the strip material was advanced and on the backward movement of the fingers the fingers opened up so that they no longer gripped the material, and they moved backward without disturbing the scrap material.

[fol. 305] X Q. 203. What was the difference between that feed than as it had been originally on the Johnson machine for feeding the paper collet, after you added it, when you were feeding the gutta percha foil?

A. When we fed the paper for the paper collet the paper was pushed into the die by means of a finger that engaged the paper by friction, and on the under side of the paper with a stationary guide. In other words, that paper was stiff enough that where there was a stationary guide, as, let us say, the arm of this chair, and the finger came down on the paper, this is the solid portion of the paper before the disc had been cut out of it, engaged the strip of paper which was resting on that guide and pushed it forward, this paper would advance satisfactorily into a position for a disc to be cut out with the die. In the case of tin-foil with gutta percha coated on its under side the material was so flexible that any such mechanism was unsatisfactory for the purpose. Therefore, in order to position an uncut portion of the ribbon or strip in the cutting die properly, we provided fingers behind the cutting die, that is, in the position of the strip material where it was full of holes after the spots had been cut from it, and we pulled it through, we pulled through

this strip portion, as I call it, of strip material a suitable distance in order to bring the uncut portion of the ribbon in proper position with respect to the cutting die.

X Q. 204. That involved a considerable change in the feeding mechanism that was on the original Johnson machine?

A. Yes.

X Q. 205. Where was that change made?

A. In our shop.

[fol. 306] X Q. 206. By whom?

A. Well, mechanics under the supervision of Mr. Rasmussen.

X Q. 207. Can you mention some of those mechanics, give their names?

A. I do not recall right now; Mr. Rasmussen, our shop superintendent, had charge of it.

X Q. 208. Can you ask Mr. Rasmussen who the mechanics are now? I would like to get that on the record now.

A. I can ask him; I do not know whether he knows.

Mr. Scull: Can you mention some of the mechanics who worked on that job in 1924?

Mr. Rasmussen: Offhand, I do not know, I would not be able to say who worked on it now, but I can look it up.

Mr. Scull: Do you remember any of them?

Mr. Rasmussen: I do not remember them now.

Mr. Scull: I want to know who they were.

Mr. Rasmussen: I do not know; I can look up the records.

The Court: He is not under oath.

Mr. Scull: I understand.

X Q. 209. And that changed mechanism is where today?

A. In our shop.

X Q. 210. You have got that changed feed mechanism?

A. Yes.

X Q. 211. Can you produce it?

A. Well, it would be easier to take you up there to look at it.

X Q. 212. Is it still on the machine?

A. Yes.

X Q. 213. What are you using it for at the present time?

A. The same purpose without the gutta percha, the same [fol. 307] feeding mechanism was used to feed to the cutting die a strip of tin-foil with gutta percha as was used both before and after to feed a similar piece of tin-foil without any gutta percha.

X Q. 214. Now, in order to do that you had to change it from one side of the machine to the other?

A. In changing it from the paper collets——

The Court: You changed it so you pulled it instead of pushed it?

The Witness: Yes.

X Q. 215. That meant, did it not, that the feeding stroke was away from the center line of the line of travel of the caps in that machine?

A. No, it was perpendicular to the line of travel of caps.

X Q. 216. But the feeding stroke was away——

A. Away from the machine.

X Q. 217. Whereas——

A. And on the opposite side.

X Q. 218. Whereas when you were feeding the paper collets the feeding stroke was toward the center of the machine?

A. That is right.

X Q. 219. What did that involve so far as the change in that feeding mechanism was concerned? Did you just take the whole feeding mechanism and bodily bring it over to the other side of the machine?

A. No, it is a different feeding mechanism, different fingers, I believe different levers and different connections to the actuating mechanism.

X Q. 220. You have still got that?

A. Yes.

X Q. 221. You have still got that?

A. Yes.

X Q. 222. Still in use?

[fol. 308] A. Yes, we have both types on the machine at different times today just as years ago. We use that machine for different purposes at different times. We use it for assembling cork discs into the metal shells to produce a cap without a center spot and then at other times we use it for inserting the center spots into those assembled crowns.

Part of the crowns that we ship to Inecto have center spots, about one-half, and the other part do not have center spots.

X Q. 223. It seems to me that when you are feeding the paper collet at the time that you are making the plain crowns the feed is in a different direction from what it is when you put it on the spot, is that right?

A. Maybe if you will give me a piece of paper——

X Q. 224. No, just answer my question.

A. May I have it again, please?

(Question repeated by the reporter.)

A. No, it is in the same direction. Here is the line-up of the machine like this, and I use this arm chair (indicating). When we are assembling cork discs into the crown we feed our adhesive paper along the arm of the chair into the machine like this (indicating).

X Q. 225. You push it?

A. We push it in a direction from me to you.

X Q. 226. And the mechanism is on the far side of the line of the machine?

A. The far side from you, yes. Now, when we feed tin-foil the mechanism is on the near side of the machine, toward you, and the mechanism still travels in a direction toward you, pulling the material through.

[fol. 309] X Q. 227. How does the mechanism on the same machine get from one position to the other? When I want to first make a plain crown and then later on to put spots on it?

A. We put it there. That is not quite correct. We render inoperative the mechanism on the one side and we install or render operative the mechanism that is on the other side, for the different purposes.

X Q. 228. Have you any drawings of that mechanism?

A. No.

X Q. 229. How far in this 1924 work that you have been telling us about did the crown with the spot on it travel to reach the drum, how long before it reached the drum?

A. I would say a distance of approximately three feet.

X Q. 230. By the way, at what rate did you operate that machine?

A. When inserting cork discs we operated it at the rate approximately of 200 per minute. When inserting center spots we operated it at approximately 160 per minute.

X Q. 231. And in that machine I think as you have described it the only reciprocating member was the punch that cut out the spot and placed it on the crown, is that right?

A. Are you speaking of the operation in which we inserted tin-foil with gutta percha?

X Q. 232. Yes.

A. That is correct, with one exception. The plungers in the collecting drum reciprocate a small distance.

X Q. 233. That was the only reciprocating member—this punch itself was the only reciprocating member you had at the point where the stop was applied to the crown?

A. The punch and the die.

X Q. 234. The die reciprocated?

A. Yes. The die was a self-contained unit, that is the [fol. 310] lower member of the die was attached to a sleeve. On the underneath side of the die was a locating member whose inside diameter was approximately the diameter of the center spot—slightly larger for clearance—and whose outside diameter was very slightly smaller than the inside diameter of the metal shell of the crown. Inside of that sleeve was the cutting punch. The sleeve, with the punch in it, was mounted in a holder. The entire holder with the die and its locating member and the sleeve and the punch inside of it reciprocated. Now, on the downstroke the locating portion of the die entered the crown shell. Its undersurface struck the upper surface of the cork disc and then the sleeve, with its punching die could no longer drop. The punch, however, continued to descend while the spring that controlled the action of the sleeve was compressed as the punch continued to descend and the center spot was cut out and deposited on the cork disc. That was the die that Nagy made for us.

X Q. 235. Is that die still in existence?

A. Yes.

X Q. 236. On the machine?

A. It is on the machine when we were inserting center spots.

X Q. 237. My understanding is that after February or March of 1925——

A. May I interrupt you a minute?

X Q. 238. Yes.

A. You asked me about the die in existence?

X Q. 239. Yes.

A. If you are talking about the die for gutta percha type it is the same die, but we have made slight alterations in its inserting member for making the White Rock type. After we got through making the gutta percha spots there was an [fol. 311] alteration necessary in the inserting plunger, in that cutting punch and that is different for the Millis type crown than it is for the gutta percha type. The insert plunger is flat with the gutta percha type, it simply deposits a center spot on the upper surface of the cork disc and in the

Millis type crown that plunger is shaped to shape the member when pushing it into the slot, the slot that is scored in the cork disc.

X Q. 240. So that it is a matter of pieces of metal then and that punching and centering mechanism that you say you used there in 1925 is not really now in existence?

A. What's that?

(Question repeated by the reporter.)

A. Oh, no.

X Q. 241. Can you take the mechanism about which you have just been telling us as being in existence today and put center spots with gutta percha on crowns with it?

A. We would first substitute a flat inserting plunger that is now on the inside of the punch.

X Q. 242. No other change?

A. That is all so far as the punch and die are concerned.

X Q. 243. How was it when you say Nagy changed what you called the Millis to the tin center dies which he had made under this invoice of November 1st, 1924, and which is Exhibit G, that you said he had to regrind that tin center die?

A. The die that he made and delivered to us on November 1st was not intended for the insertion of center spots of the Millis type, it was intended for center spots, I believe, that were to be adhered to the cork, I do not say with gutta percha, [fol. 312] but they were not to be of the Millis type. The method that we intended to use with that die did not work out very satisfactory so the die was sent back to Mr. Nagy and on the date of the next invoice, I think it is November 20th, he delivered an altered die, the same die that was altered and if I may see that invoice I will tell you the alterations.

X Q. 244. Here it is.

A. He made a cutter attachment on a tin center die. That is the cutting knife for scoring an annular slot or a circular slot in the cork disc. He made a cutting attachment on the tin center die, regrinding the tin center die. The diameter of the center spot on the die of November 1st invoice was the diameter that we wanted the center spot in the finished crown. We had intended to simply lay it down flat. When we wanted to make a flange on that center spot and dig it into the cork then we decided to maintain the same diameter of center spot on the finished crown that we had before and in order to do that we had to make the diameter of the

cutting die larger in order to provide the metal that went into the flange. The lower cutting edge, therefore, was reground, made larger, and a new punch,—that is the last item on the invoice,—a new punch was made in order to shear the disc through that enlarged die or lower cutting member.

X Q. 245. Then, as I understand it under that invoice of November 20th what Nagy was supplying you there was dies and punches for making what you call the White Rock type of crown or Millis type?

A. That is right. November 1st was for the cutting and depositing on the cork flat. The second, or the alteration changed that into a die to make a center spot of the Millis type.

[fol. 313] X Q. 246. And the change that he made was in the parts that he had supplied you under this date of November 1st?

A. Yes, he changed the November 1st die into what he delivered on November 20th.

X Q. 247. Now, turning to this 1928 episode and the machines that you purchased from Johnson, I do not know whether I have got my records correct or not, but my understanding was that this machine fed separate strips of tissue and of foil.

A. Yes, the machine as a machine was the same whether separate strips were fed into it or one coated material. There was a roll feed that pulled the strip of the ribbon through to position the material properly over the die.

X Q. 248. And you continued to use those separate ribbons, you said, about a year?

A. Something less than that.

X Q. 249. That is, until somewhere around the middle of 1929?

A. That is right.

X Q. 250. You said, describing this Johnson machine, that there were a number of punches.

A. Plungers.

X Q. 251. Plungers. I am not now talking about the plungers on the drum but along the line of travel. How many plungers were there?

A. About which machine are you talking?

X Q. 252. I am talking about the first Johnson machine that you bought.

A. I can't be sure of the number as the machine is no

longer in existence, and it has not been for some years, as it did not work satisfactorily. To the best of my recollection I think there were two plungers before the crown reached the cutting punch and two after. That may not be entirely accurate, but there were some of them, and I think [fol. 314] they were changed from time to time, that is, when the machine did not work exactly right when we first started, Mr. Rasmussen changed it to suit himself, and he tried to make it work right.

X Q. 253. You are aware, aren't you, that on this Exhibit 35 which Mr. Johnson identified as representing the first machine which he made in March, 1928, that there are only two plungers?

A. Yes, I saw that. I do not know, I cannot say——

X Q. 254. Your testimony is that sometime between the date when this machine was made and the date July 17th, when he sent you your machine, he had added a considerable number of plungers?

A. Yes, I believe so. Now, if he didn't do it, then we did, after we got it into the shop. I can't be sure now where it was done, but it was done.

X Q. 255. You are not sure at what time either?

A. It was some time before the date of the first shipment of those crowns that we made to the Goetz Brewing Company.

X Q. 256. How do you fix that?

A. There is an invoice in evidence.

X Q. 257. I mean, how do you fix that the change in the machine was made before that time?

A. We got the machine in order to make those crowns, and when we got that machine working so we thought it was right we shipped those crowns.

X Q. 258. You are very sure you did not make any change in the machine after you shipped out this hundred gross to Goetz?

A. Yes; we did; in 1931, we scrapped the crown part of the machine and changed into something entirely different.

X Q. 259. How do you know these added plungers were [fol. 315] put on before the first shipment to Goetz rather than after?

A. After we made the first shipment to Goetz, to the best of my recollection, we did not make any changes in that machine for crown spotting, and we came to the conclusion

that a machine without a collecting drum, with spring pressure actuated plunger, a machine without that was not adequate to do the job. In other words, in getting this machine we tried to make a short cut or get something cheaper than we would have had to get if we got something that was exactly the same as we used for the Inecto people in 1925. We tried it and it did not work.

X Q. 260. You bought from and accepted from Mr. Johnson a machine on July 17, 1928, which did not have this drum with the spring pressed plunger, although you knew from your experience in 1924 that such a thing was necessary, is that right?

A. No, that is not correct. We knew from our experience in 1925, early 1925, that a machine with a drum with spring plunger would do the work properly. We sometimes learn more from our failures than from our successes. We had not yet learned from our own experience that a machine without such a drum would fail to work. In other words, the machine had a drum on there, we left it there as the thing to do, and that is the way it worked.

X Q. 261. And you had operated this machine in 1925 with one punch only and no plunger north or south of it along the line of travel?

A. That is right——

X Q. 262. Let me finish.

A. I am sorry.

X Q. 263. Yet you found very shortly after you put this machine of 1928 into use, that you had to have these addi-
[fol. 316] tional plungers, is that right?

A. You are still talking about the first machine from Johnson?

X Q. 264. Yes.

A. Yes, even with the additional plungers the machine did not work. The idea is this: The function of using plungers is to supply heat to the exposed surface of the cork disc or to the center spot itself after it is applied to the cork disc in order to make the adhesive tacky. In the case of the machine on which we made the Inecto caps, that heat was supplied by gas flame.

X Q. 265. And there was no heat by gas flame in the Johnson machine supplied you in 1928?

A. No; that is electrically supplied heat, and that was done by means of these reciprocating electric plungers.

X Q. 266. What are the plungers that follow the cutting part for?

A. In the case of that first machine?

X Q. 267. The first Johnson machine.

A. Yes, the first Johnson machine that did not have the collecting drum, to the best of my recollection those plungers were cold plungers and were expected to apply a pressure with their reciprocating motion, and they had, I believe, a heavy spring on them, supply a pressure to take the place of what the collecting drum had done in the machine for the Inecto caps in 1925. I believe they were cold plungers, and that was the purpose.

X Q. 268. At what speed would this Johnson machine run when you were putting on the hot spots?

A. I do not remember that.

X Q. 269. Can you give us an idea?

A. It would be a pure guess now. We made only a small quantity of crowns and they weren't satisfactory, and we abandoned the machine.

[fol. 317] X Q. 270. All right.

A. It would be a guess.

X Q. 271. At what speed did the second Johnson machine run?

A. About 200 a minute.

X Q. 272. That is about the same as you say the machine ran in 1925?

A. It is about the same speed as the machine ran in 1925 for inserting cork discs into the metal shells. I would say it ran a little slower, about 160 a minute, for any spotting operation. That is what it runs now.

X Q. 273. What did you pay for this Johnson machine in 1928?

A. The invoices are there. I believe the first one was $1200.

Recess until Tuesday, November 12, 1935, at 10:30 a. m.

Brooklyn, N. Y., November 12, 1935.

Met pursuant to recess at 10:30 a. m.; present as before.

BENNO COHN, resumed the stand.

Direct examination continued.

By Mr. Warland:

Q. 274. I show you a crown cap marked Plaintiff's Exhibit 6, which has a center spot of hard glazed varnished paper. Did the Gutmann Company ever make and sell such spots?

A. Yes. We made, this has a natural cork, yes, I think we made them like that.

Q. 275. Did you also make them with composition corks?

A. We made them also with composition corks. Yes, this is one of ours.

[fol. 318] Q. 276. When did the Gutmann Company first manufacture center spot crowns of either natural or composition cork with a center spot of hard varnished glazed paper secured by gutta percha?

A. You mean commercially or experimentally?

Q. 277. Commercially.

A. Commercially, in March, 1930.

Q. 278. Had you made them before March, 1930?

A. Experimentally we had, just to assure ourselves that we would be able to produce them.

Q. 279. How much before March, 1930, had you made them?

A. About a year before, not quite. I believe you have in evidence an invoice from Peters Brothers Rubber Company to us for coating some of this material with gutta percha, and at about that time we used that material to run through a few crowns.

Q. 280. Who did you make the first shipments of these paper spot crowns to?

A. The Crown Cap Manufacturing Company.

Q. 281. Where are they?

A. They were within a few blocks from us in the Bush Terminal.

Q. 282. Did you ship any quantity of these glazed paper spot crowns?

A. Oh, yes, we made continual shipments from then on to Crown Cap.

Q. 283. Who else?

A. We shipped to Pabst Brewing Company, Welch Grape Juice Company, and later we shipped to others.

Q. 284. Are you still shipping large quantities to Welch Grape Juice Company?

A. Yes.

Q. 285. Approximately how many crowns would you say you shipped to the Welch Grape Juice Company in say 1931 and 1932?

A. In 1931, I believe we shipped Welch only a case of 200 gross; you have a tabulation there somewhere. In 1932, [fol. 319] we shipped them several carloads, I believe; a carload is 30,000 gross.

Q. 286. I show you a publication entitled, "Spot Crowns," which is an advertisement put out by the plaintiff, Crown Cork & Seal Company, and ask you if you have seen a publication like that?

A. Yes, I have seen them; I am not sure it is this one, but I have seen similar publications.

Q. 287. I notice it is stated on page 30 of that publication, "An important part of this work was the perfection by the C. C. S. Laboratories of a special composition disc called Canax which is especially suited for use in spot assemblies." Did you ever buy any Canax from the Crown Cork & Seal Company?

A. I don't believe we ever bought any Canax from the Crown Cork & Seal Company but they did solicit our business on Canax discs.

Q. 288. Have you got any document referring to that?

A. Yes, I believe we have. If you want to hand me that batch of papers I can find it for you, Mr. Warland.

Q. 289. I show you a letter from the Crown Cork & Seal Company addressed to the defendant, Ferdinand Gutmann Company, dated December 10, 1928. Did you receive that letter?

A. Yes, we did.

Q. 290. Prior to that time, had any of the plaintiff's representatives called upon you to try and sell you Canax cork?

A. Yes, they saw our Mr. Ferdinand Gutmann.

Q. 291. Was there anything said about it being especially adapted for center spot crowns?

A. Yes, they told us that is what they used for their spot crowns. There is an acknowledgment there attached to the sample lot.

[fol. 320] Q. 292. I show you a paper attached to that letter, please tell me what that is.

A. That is an acknowledgment of the Crown Cork & Seal Company of an order to ship us five gross of Cerax disc and five gross of Canax.

Q. 293. What is meant by Cerax?

A. That was a grade of composition cork which the Cork Crown & Seal Company used in their ordinary crowns that did not have center spots. The Canax was a grade used in crowns that did have center spots.

Mr. Warland: I offer the circular shown the witness in evidence.

(Marked Defendant's Exhibit YYY in evidence.)

Mr. Warland: I also offer in evidence the letter from the Crown Cork & Seal Company dated December 10, 1928, with the attached acknowledgment.

(Marked Defendant's Exhibit ZZZ in evidence.)

Q. 294. Now, you said something yesterday about the speed at which you make these center spot caps called for—shown in this litigation. As I recall you said it was approximately 200 a minute, is that right?

A. That's right.

Q. 295. Now, how many gross a day does that aggregate, in an 8-hour day?

A. About 700. We work a little more than 8 hours.

Q. 296. 700 gross in a working day?

A. That's right.

Q. 297. And does that speed include putting the cork in the cap and also applying the center spot, in one machine? [fol. 321] A. Yes, it does. That was the same speed we had previously run the separate machines.

Q. 298. Do you mean by that that previously each separate machine ran about 200 a minute?

A. Each machine ran about 200 a minute and we would get about 700 gross per day of center spot crowns out of the two machines, the combined product. Now, one machine gives us 700 gross of center spot crowns.

Q. 299. Going back to this adhesive 4620, I believe you stated on your direct examination on Friday that you got about a gallon of this early in 1932. I notice from the letter which was put in that it refers to a half pint sample.

A. Yes.

Q. 300. Do you wish to explain that in any way?

A. The letter is correct; in May, 1932, we got the sample that is described in that letter, a half pint. In April, 1933, we bought a gallon of material from them.

Q. 301. Was that sample of half a pint sufficient to adhere the center spots to approximately how many crowns or gross of crowns?

A. Why, if used efficiently that would probably be sufficient for around 30 gross of crowns.

Q. 302. As I recall your testimony Friday you said that you made an experimental run in February, 1933.

A. Yes.

Q. 303. Was that made with 4620 out of this half pint sample?

A. Yes.

Q. 304. Had you used any of that half pint sample for any purpose other than center spot crowns prior to the time you began experimenting on center spot crowns?

A. Not in any appreciable amount, not to use up any of the adhesive. Mr. Eisen used a little in the laboratory producing the hand samples of center spot crowns before we [fol. 322] ran them on the machine, and he may have used slight quantities out of that half pint for a few other experiments.

Q. 305. Regarding the first shipments which, as I recall it, were made of 4620 to the Peter Hand Brewing Company——

A. That is right.

Q. 306. And who was the other?

A. William Gerst Brewing Company.

Q. 307. Your factory records show that the center spot was secured by 4620.

A. Yes.

Q. 308. Was there anything on the invoices to those people showing it was 4620?

A. No.

Q. 309. What records have you got showing that 4620 was used on those first shipments?

A. The packing tickets that we keep to correspond with those case numbers.

Q. 310. I show you some papers and ask you to please tell me what they are and what your factory method is in keeping track of the cases of goods that are made and sold?

A. The top two papers are the pink and blue order copies.

The pink copy is the factory, the manufacturing and shipping order covering 100 gross of special decorated crowns which we shipped to the Peter Hand Brewing Company, Chicago, July 3, 1933. We cased 100 gross in one case, No. 148.

The blue copy is that which we habitually keep in the office for track of production. That has a note on it in what looks like Mr. Eisen's handwriting, "4620 run in paper room." The paper room was a separate room we had at the time that we used for making our first runs of aluminum foil coated with 4620 adhesive.

The next two papers—let me say that 100 gross is our order No. C-3079. This order, the pink copy of that order, shows under the heading, "Packing slip No. 3050."

[fol. 323] The next two sheets are the pink and blue copies of our order No. C-3050 covering 27,600 gross of special decorated crowns that we shipped to the Peter Hand Brewing Company at Chicago on June 26, 1933. The order calls for 30,000 gross as the quantity ordered, and we shipped 27,600. There are no marks on that other than our usual manufacturing and shipping marks referring to 4620 or anything else.

The next batch of papers, these white slips with green tickets pasted on them, is our packing list. Every one of these green tickets is written out, or the beginning of it is written out by the operator of the machine that produces the crowns, the assembling machine operator, the date and the operator's number, and usually the carton number from which the cork discs were taken, are put on that ticket, and later the name of the packer who closes up the carton or the case, and the date is put on the ticket and the case is given a number when it is packed, that number corresponding, of course, to the number on the manufacturing or shipping copy of the invoice when the merchandise is shipped out.

Now, case No. 148 on that packing ticket of C-3050 has a notation, I believe; yes, the green ticket for case No. 148 shows a quantity of 100 gross assembled June 22, 1933, by J. B. E. and Schmidt. J. B. E. is Mr. Eisen, and Schmidt is the name of the mechanic who takes care, of the foreman who takes care of the crown assembling machines. That indicates that one of our regular assembling machine operators did not run those crowns through; the machine was run by the mechanic with Mr. Eisen standing by, and it is noted there in Mr. Eisen's handwriting, "Special 4620,"

[fol. 324] and up in the corner it reads, "90 gross special foil 4620, 10 gross regular." The entire package was 100 gross.

Q. 311. Can you separate from that bundle of papers the invoices showing the factory number——

A. The invoice or our shipping ticket?

Q. 312. The shipping ticket also.

A. Yes, sir.

Q. 313. And also the green slip you just testified about?

A. And do you want this blue slip?

Q. 314. What does the blue slip show?

A. That is kept in the office in regard to production. Now, this green ticket, do you want it on the list or shall I tear it off?

Q. 315. Is it just one sheet?

A. It is one of the sheets.

Q. 316. I do not want the whole bundle.

A. All right. It is the last ticket on there (indicating).

Mr. Warland: I offer this in evidence as one exhibit.

(Marked Defendant's Exhibit AAAA in evidence.)

Q. 317. I show you another factory order for the William Gerst Brewing Company and I ask you the same question about that.

A. The first two papers here are the pink and blue copies.

Q. 318. And what is the date of the pink and blue copies?

A. Our order No. C3090 dated July 13, 1933, covering a shipment——

Q. 319. How do you know that had No. 4620 on it?

A. That covers 1493 gross and a number of the case numbers are marked on the pink copy here—the packing slip No. 6656. The next two papers are pink and blue copies and our order No. S6656, which was a stock order calling for the manufacture of 4964 gross of Gerst crowns.

[fol. 325] The next papers are the packing tickets corresponding to that stock order and the crowns shipped on order No. C3090 on July 13 included the cases that were run up on that packing ticket. Now, taking the cases numbered —I think there are four cases on here, yes, the cases numbered 76, 77, 78 and 79,—cartons rather—containing 50 gross each were manufactured by one of our regular as-

sembly machine operators on June 29, 1933, and marked on each of those tickets is S. F. Eisen and to the best of my recollection that means, "Special Foil Eisen,"—that is supplied by him to the operator. Of those four cases numbered 76, 77, 78 and 79, cases numbered 77, 78 and 79 were included in the shipment of July 13, 1933, to Gerst, and that was two cases of 50 gross and one of 43 gross, a total of 143 gross were run with 4620 adhesive and the balance were of our regular manufactured center spot crowns adhered with gutta percha.

Q. 320. Will you separate those as you did with the other exhibit?

A. Yes. I note here on the blue copy there is a note, "Contents of cartons 76, 77, 78 and 79 made with 4620." That was a note made by Mr. Eisen.

Mr. Warland: I offer these papers in evidence as one exhibit.

(Marked Defendant's Exhibit BBBB in evidence.)

Q. 321. Now, when you adopted 4620 as the adhesive did you make any difference in the speed of your machines?

A. No.

Mr. Warland: That is all.

[fol. 326] Cross-examination.

By Mr. Scull (continued):

X Q. 322. Now, as to these paper spots you have told us about, Mr. Cohn, how does it come about that the defendant took up their manufacture—what induced it?

A. The people asking us to make them for them.

X Q. 323. There was a considerable demand?

A. Yes.

X Q. 324. And had been for some before you began manufacturing them?

A. We had seen them on the market before we put them out. That is what led me to get some of the material for it in 1929.

X Q. 325. Where did you get that material?

A. From Peters Brothers. That is we got the varnished paper from the Irvington Varnish & Insulator Company, who are regular manufacturers of varnished paper and we

sent that paper to the Peters Brothers to have them apply the gutta percha to it.

X Q. 326. When you ordered this paper from them did you tell them you wanted it for center spots?

A. No.

X Q. 327. What did you order?

A. To the best of my recollection it was 90-pound express paper, yellow varnish one side coated.

X Q. 328. Had you seen any such paper used for spots on crowns before you ordered it?

A. Yes.

X Q. 329. And you knew that is what the spots were made of which were then being used on the market?

A. Substantially, yes. I am not sure that I know it was 90-pound paper, but I knew it was that kind of paper.

X Q. 330. You told us something about your production of paper spots I think up to 1932. Am I to understand that [fol. 327] this carload that you shipped to Welch in 1932 were the only paper spots that were shipped in 1932?

A. No, I said we shipped carload quantities. I believe we shipped more than one carload to Welch in 1932, I am not sure.

X Q. 331. Were you selling to others?

A. Yes, I mentioned Pabst, and there were some others.

X Q. 332. And you have been selling continuously since up to the present time?

A. Yes.

X Q. 333. In about those quantities or considerably more?

A. No, not considerably more; about those quantities. Our principal business is with brewers who use aluminum center spots, but people like the Welch Grape Juice Company use the oil paper spots.

X Q. 334. Have you sold any to any of the ginger ale companies?

A. We have sold Canada Dry some crowns. I believe we sold them a couple of carloads in 1932, I am not sure of the dates and years, but we did sell them a couple of carloads. I do not believe we have been successful in getting any more business out of them.

X Q. 335. At page 279 of the record you were telling us on Friday about something which preceded your use of the Millis type, or, rather, the making of the Millis type, White Rock type of center spots, and you said that "the method

we intended to use with that die did not work out very satisfactory."

A. Yes.

X Q. 336. What was that method?

A. I am a little bit hazy on it. Our records do not show, but to the best of my recollection we tried two things. Some of our correspondence with Inecto indicates that the first thing we tried to do was to simply adhere the center spot to [fol. 328] the cork disc by dropping, putting some paraffin, hot paraffin molten, on top of the cork disc, inserting the center spot of the molten paraffin and then putting more paraffin on top of that; in other words, putting the center spot between two layers of paraffin, the idea being that the Inecto people were very nervous, Dr. Evans was very nervous about having anything come in contact with his hydrogen peroxide except materials known to be inert to hydrogen peroxide, and those materials were notably glass, paraffin and tin; I do not mean tin plate, I mean tin. But that did not work. I am not positive that that is the case, but that is, to the best of my recollection today.

X Q. 337. You referred to your correspondence with Inecto. Have you got that all here?

A. I have some of it. Anything that is pertinent, I think.

X Q. 338. I didn't ask you what was pertinent, I wanted to know if you had it all here?

A. I did not bring the entire correspondence with Inecto here.

X Q. 339. You have more than you have introduced here in evidence?

A. Yes, there is some more. Anything that had to do with the center spots I brought down.

Mr. Scull: May I see that, Mr. Warland, please?

The Witness: I think there is a folder there marked Inecto.

X Q. 340. Was this attempt to stick the spot on with paraffin the first time you had ever tried to put spots on crowns?

A. Yes.

X Q. 341. For any purpose in any way?

A. That is right.

[fol. 329] X Q. 342. Did you ever try to hold the spot on by coating the entire surface of the crown, the spot and all, with water glass?

A. No, that is too brittle.

X Q. 343. Did you try to use water glass in any way to hold the spot on?

A. No, I would not try to use water glass for that purpose.

X Q. 344. My understanding is that this attempt to fasten the spot on with paraffin occurred in the latter part of 1924.

A. We received an order from the Inecto people, if I remember right, in August, 1924, and we kept fooling with, or experimenting, I should say, with various methods of getting the center spots to stay on the cork until December, 1924, when we shipped them some caps, of the White Rock or Millis type.

X Q. 345. Coming to this White Rock type, were you operating under any of these patents that have been referred to here showing that?

A. No.

X Q. 346. When did you make the first cut-in of the White Rock type?

A. I believe the record shows December 4, 1924, we shipped to Inecto.

X Q. 347. How much ahead of that had you made them?

A. We shipped some as soon as we got them satisfactory; they were waiting for them.

X Q. 348. I would like to have a rather detailed description of the machine, the way you put in those White Rock crowns; in the first place, what kind of a machine did you use as the base?

A. A Clark-Johnson assembling machine.

X Q. 349. And that is provided with the usual chute and hopper?

A. Yes.

X Q. 350. And on that Clark-Johnson machine that you had how long was that chute?

A. At that time that chute was, I should say, three feet [fol. 330] long, possibly a little longer. Since then we have got shorter chutes that do not take up so much room, but at that time we still had the long chute.

X Q. 351. And then, for my information as to the Clark-Johnson machine, after the shell comes down the chute it enters a rotating disc, is that right?

A. Yes, it rests on top of a rotating dial and there is a circular guide that bounds the periphery of that dial to control the path of the shells, of the crowns.

X Q. 352. On your machines how far did the shell travel from the time that it entered this disc until it passed out into the rack, in degrees now?

A. The disc is approximately 12 inches in diameter, if I remember it right, and it traveled about a half a turn on that disc, which would make about 18 inches of travel, and then it entered the rack.

X Q. 353. Now, next I assume is the cutting of the groove in the cork, is that right?

A. Yes. You are talking about the machine that we had in December, 1924.

X Q. 354. Yes.

A. That is right.

X Q. 355. Now, how was that cutting done?

A. By a rotating knife.

X Q. 356. And was it a knife or a——

A. It was a circular knife.

X Q. 357. How was that driven?

A. You mean made to rotate?

X Q. 358. Yes.

A. It was rotated by means of gears—there is a small train of gears. The driving gear was mounted on a shaft that went through the center of this dial. The dial of course was driven from the main shaft of the machine below, through beveled gears.

[fol. 331] X Q. 359. And that cutter rises and falls?

A. Yes.

X Q. 360. And there were ways by which you could determine the depth of the cut?

A. Yes, but those ways, if you recall, were not good enough because that was one of the troubles with the December, 1924 production.

X Q. 361. And next came the punch which punches out the disc or foil?

A. Right.

X Q. 362. And inserts it in this groove, is that right?

A. That's right.

X Q. 363. Now, how was the end of that punch formed, what was it, it was not flat I think you told us.

A. Now, do not mix up the punch with the inserting plunger.

X Q. 364. Perhaps I have not understood you then. How many reciprocating members are there?

A. Just one. The inserting plunger is inside of the punch.

X Q. 365. Now, this member that rises and falls above the strip of foil is really a compound member, is that right?

A. Yes.

X Q. 366. Can you make a sketch of it, Mr. Cohn?

A. I think so.

X Q. 367. Will you do so please?

A. Surely (sketching on paper). I think this just about shows it. It is very rough of course. The lower cutting edge with its locating portion centers—locates the crown centrally with respect to the die and assures the centering of the center spot on the cork disc. The punch descends and shears the center spot through the lower member and pushes the center spot down or very close to the cork disc and the inserting plunger inserts it into the annular slot.

[fol. 332] Mr. Scull: I offer this sketch just made by the witness in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 38 in evidence.)

X Q. 368. I think you told us that when you went into the making of this White Rock type you decided to keep the exposed surface of the spot the same as you had previously attempted with paraffin.

A. Yes.

X Q. 369. And that necessitated enlarging the cutting punch?

A. That is right.

X Q. 370. Because you had to have additional material to tuck into the slot?

A. You will notice that the diameter of the inserting plunger is approximately the diameter of the center spot in the finished crown. The cutting punch has to be bigger.

X Q. 371. And it was these parts which you referred to in the Nagy bill of November 20th as making a cutting attachment on the tin center die, regrinding tin center die and making new punch, and the new punch is just what you have drawn here on the sketch?

A. That's right. Now, that invoice does not say anything about the inserting plunger. I do not know whether he made it or whether we did.

X Q. 372. Now, on this machine in making these White Rock caps, did the spotted crowns go through the drum at the end of the machine?

A. You will note that some of those invoices show something about paraffin on top of the disc. Now that has nothing to do with center spots per se. I would answer your question this way; if at the same time we were dropping paraffin on top then we would remove the plungers from the drum because we would not want the plungers splashing down on molten paraffin, that is according to the best of my recollection. I think however there was no complication from paraffin, we would leave the plungers there, not that they were needed, which they were not, but they were needed when we assembled the cork discs into the crown and there is no point in taking things off and putting them back for the fun of it.

[fol. 333]

X Q. 373. You did not divert the crowns?

A. The crowns went through the drum.

X Q. 374. Now, where did you put the wax or paraffin on the surface of the crown and the spot, which I understand was the custom always so far as the Inecto crowns are concerned.

A. No, no, no. Some of the time we would use paraffin and some of the time we did not. Just when we started and when we stopped I don't know, I am not exactly sure here, but to the best of my recollection we started in without it, that is without that paraffin on top of the cork disc in our first actual shipments to Inecto, that is in the first of these White Rock type. That proved unsatisfactory for the reasons that have been described and I believe we enabled the Inecto people to use those crowns by putting them through a separate operation later and dropping some paraffin over the whole thing, I am not certain, but I think we did.

X Q. 375. How would that have enabled them to use these crowns, these White Rock crowns with the spot when the cork was cutting through that way?

A. It would simply put a layer of inert material between

[fol. 334]

the cork and the contents of the bottle, and if we were fortunate enough on any particular bottle not to have that layer cut through, then it worked all right. Or it may be that they used those crowns up later when they got better bottles, or for all I know, they may not have used them at all, I am not sure. But I know at some stages

of the game we dropped paraffin on top of the center spot and cork disc, and then later we obtained a special alloy of tin-foil that was found to work better with peroxide and be even more inert to the peroxide than the pure tin we had been furnishing, and after that we dropped the use of paraffin which proved to be a nuisance——

X Q. 376. What do you mean by "later," about when?

A. I think sometime in 1925. There were, I remember, a number of conferences about that time to try to improve that.

X Q. 377. Not prior to March?

A. Prior to March, 1925?

X Q. 378. Yes.

A. I do not believe so, but I believe that those invoices that are in evidence will show whether there was paraffin on them or not.

X Q. 379. When you did put this wax on was it done in the same machine in which you did your spotting?

A. I do not know whether it was done at the same time, but it was done on the same machine. We only had one machine for making that one size crown at any time.

X Q. 380. You mean it was put through the machine a second time?

A. It may have been.

X Q. 381. Or passed through a third time, as a matter of fact?

A. It may have been, yes.

X Q. 382. And that wax was dropped on the surface and then spread by some kind of spreader?

A. That is right.

[fol. 335] X Q. 383. Well, my understanding from Dr. Evans' testimony is he wanted a pretty heavy coating of paraffin to protect the spot and the cork from the peroxide?

A. He wanted a complete coating; how thick it was didn't matter much, but it had to be a certain thickness in order to be satisfactory and be sure there were no holes in it. As a matter of fact, the paraffin proved to be a nuisance, because it tended to cause the crowns to stick in the chute of the crowning machine. We abandoned it as soon as we could get a tin-foil that would work better.

X Q. 384. Prior to this Inecto incident of paraffining the spot, had you been supplying crowns to Inecto?

A. Yes.

X Q. 385. They were natural cork and heavy paraffin, were they not?

A. That is right; before that natural cork without a specially heavy paraffin.

X Q. 386. In this letter of February 20, 1924, which has been produced here as part of the correspondence with Inecto, from you to Inecto, there is a statement "referring to the writer's visit today with reference to the specially heavy extra coating of paraffin on your corks, we beg to suggest the use of a refined paraffin of about 120 degrees N B"——

A. I am sorry; who suggested that?

X Q. 387. In this letter——

A. I did not get that one word.

X Q. 388. It says, "We beg to suggest." That indicates, does it not, that as late as February 20th you were using a specially heavy extra coating of paraffin on the natural cork caps?

A. Yes, to the best of my recollection we began to use at that time an extra coating applied to the corks, to the [fol. 336] cork disc after the cork disc was inserted into the shell. Prior to that time we had been treating our cork discs, washing them and treating them before they were inserted in the shell, and the cork discs were coated with paraffin at that time, but that coating of paraffin could not be very heavy, for if it were it was apt to interfere with the adhesion between the cork disc and the metal shell.

X Q. 389. That was just the ordinary amount of wax?

A. That is right. This letter refers to an additional amount which I believe we dropped on the cork, and when that didn't help them much, help them enough, we went to center spotting.

X Q. 390. Yes, but this letter——

A. That is February, 1924.

X Q. 391. Of course, you were making center spots then?

A. No, no. That was 1924, wasn't it?

X Q. 392. You told us that you improved the method of cutting these grooves and making the White Rock type. This improvement occurred, as I recall your testimony, sometime in March, probably, of 1925, is that right?

A. That is right.

X Q. 393. What was the improvement?

A. It was an improvement in the cork scoring knife.

I think we scalloped the knife or did something to make it work better.

X Q. 394. How did that affect the depth of the cut?

A. It enabled us to control it better.

X Q. 395. In the last part of 1924 and during 1925, did you send out samples of your White Rock type of center spot crowns to others than Inecto?

A. I believe not. Now, at some time around there we [fol. 337] solicited the business actively of the White Rock Company, and at the same time that Nagy made that die for us for Inecto, he made another die of the size for a standard crown that was used only for experimental or sample purposes, and around that time we solicited the business of the White Rock Company. As a matter of fact, I think you had something to do with it either then or a year or two later; that is merely my recollection.

X Q. 396. You think what?

A. I think your office had some connection with this in connection with the White Rock Company. I won't be positive about that.

X Q. 397. You mean my firm?

A. I believe so, yes.

X Q. 398. Well, there were other people using center spots besides White Rock at that time, were there not?

A. Yes.

X Q. 399. Did you try to solicit their business?

A. No, no. The White Rock business by itself had volume enough to warrant our getting special machinery for it.

X Q. 400. Weren't there others using spots at that time with considerable volume?

A. There was considerable volume, but we were active chiefly in connection with the brewery trade, and there wasn't considerable volume in connection with the brewery trade with center spots at that time. We did go after the Inecto business. I know that the Kalak people who were right in our building, did not have sufficient business to warrant our installing machines.

X Q. 401. And what kind of spots were they using?

A. They were using tin-foil center spots adhered with gutta percha and at other times I saw the White Rock type down there.

[fol. 338] X Q. 402. The only one concern that you sold any of these adhesive and stick spots to in 1925 was this Inecto Company?

A. That's right.

X Q. 403. And by the way you have put in an exhibit here, marked XXX, which shows your sales beginning with 1928. Now can you give me some idea what your sales of crown caps of all kinds was in let us say the years '24, '25, '26 and '27.

A. I haven't looked that up but I would say they were probably smaller than shown in 1928. After prohibition our crown business suffered very severely and we went into other lines, but I haven't looked it up and I will have to find out.

X Q. 404. Now, Exhibit XXX gives the gross sales of crowns in 1928 as 843,000 gross.

A. Yes.

X Q. 405. And would it be your idea that in the years 1925, '26, and '27 the sales were about that same order?

A. '28 was 843,000 gross?

X Q. 406. Yes.

A. I told you I would have to look it up. My impression is that they were probably less. They did not go down to 10 gross of course or something like that, they were in the hundreds of thousands of gross.

X Q. 407. Several hundred thousands?

A. Yes.

X Q. 408. And out of those crowns of all types what percentage were spot crowns, we will say in 1925?

A. In 1925 the only spot crowns we made were for the Inecto people. Now I guess we had the quantity somewhere.

X Q. 409. You have told us you sold altogether——

A. Over twenty million caps.

X Q. 410. That is down to date?

A. Yes. It would average about two million a year. It was less than and more today.

[fol. 339] X Q. 411. Have you those figures available?

A. In regard to the sale to the Inecto, yes.

X Q. 412. No, I am particularly interested in your total sales of crowns of all kinds in the years 1925, '26 and '27, and those with center spots. In other words I would like to have your Exhibit XXX extended back so as to include the years 1924, '25 and '26.

A. Well, I would have to go to work and tally them up.

We would have to go through our sales books and have them tabulated. It can be done. It will take a little time.

X Q. 413. Why did you start this exhibit in 1928?

A. That is when we started to produce center spots in volume to the brewery trade.

X Q. 414. Will you make up such a list before the completion of the trial and let us have it please?

A. Yes.

X Q. 415. I should like it as soon as possible.

A. I will do my best. It will take a bit of work to go through it.

X Q. 416. Did you ever make and sell any of those White Rock type of center spots with composition cork?

A. No, we did not.

X Q. 417. In other words you agree with Mr. Weisenberg when he says it is necessary to use natural cork with the White Rock type?

A. To the extent that we have not succeeded in inserting that type into composition cork: I would not agree that it is impossible, we have not tried very hard. We have not been called upon to try very hard.

X Q. 418. But you have tried it?

A. Yes, we have tried it.

X Q. 419. Now, there was a letter here which is Exhibit I, [fol. 340] dated January 17, 1925, acknowledging a letter of yours of January 16th. That is your letter of January 16th. Have you that letter here?

A. Is that the Beechnut Foil Company that you are talking about?

X Q. 420. Yes.

A. Yes, that letter is here.

Mr. Scull: May I see that letter and at the same time all the correspondence had with the Beechnut people in this period, in the latter part of December until March?

The Witness: I think it is there.

Mr. Warland: We will produce it.

X Q. 421. Now, turning to these gutta percha spots for the Inecto Company am I correct in understanding that you used the same machine that you had previously been using for the White Rock type of cap for Inecto?

A. After making such alterations in the machine it was necessary for the production of the gutta percha type cap.

X Q. 422. It was the same Clark-Johnson machine?

A. That is right.

X Q. 423. Now, I should like to know with some detail just what changes you made in the machine, starting with it in the condition it was in for making the White Rock type of spot for Inecto. In the first place I think you told us that you put heat on the chute?

A. That's right.

X Q. 424. Now, what was the particular arrangement for the heat?

A. A gas flame.

X Q. 425. Of the Bunsen burner type?

A. Well, you might call it that, it was a multiple Bunsen burner if it was, a pipe with lots of holes in it, the holes being [fol. 341] in a direction perpendicular with the chute so that the flame played over the chute.

X Q. 426. Was it high pressure or low pressure?

A. Low pressure.

X Q. 427. And how long was that?

A. About the length of the chute.

X Q. 428. About three feet long?

A. Well, the pipe was probably less.

X Q. 429. You mean to say that the flame was three feet long?

A. No, the pipe was three feet long. The flame shot out perpendicular of the pipe.

X Q. 430. And over what extent of that chute were the flames playing?

A. Most of the three feet.

X Q. 431. And then of course it had a disc as before which carried the shell or in this case the shell with the cork in it, around into the feed rack?

A. The dial, that is right.

X Q. 432. There was no change in that respect?

A. That's right.

X Q. 433. And then you took off the rotating knife?

A. Right.

X Q. 434. Now, what did you do so far as the punch is concerned?

A. The tin-foil cutting punch?

X Q. 435. Yes.

A. We took out the insert plunger that was in there and substituted another one that was flat.

X Q. 436. No other change?

A. In the cutting punch itself, I believe not, the diameter was left as it was so that we get a somewhat larger center spot.

X Q. 437. What about the die and by die I mean female part of the punching die?

A. That was left the same.

[fol. 342] X Q. 438. Have you any records of any such change?

A. What is that, I don't quite get you.

X Q. 439. Have you any records of any such change?

A. No, we have a record of the fact that the work was done on that machine between August or September of 1924 and March or April of 1925. There is one record covering the various changes. The rest of what I am saying is a matter of my own recollection, refreshed by such records as you have seen.

X Q. 440. My understanding of your testimony is that after the spot was pressed down on the cork the assembled crown then traveled by means of this rack down to the dial or drum.

A. Down to the drum. Are you talking about the White Rock or the gutta percha type of 1925?

X Q. 441. The gutta percha type of 1925.

A. That is right.

X Q. 442. And you were not sure whether or not there was any heat from the gas flame above that as it traveled?

A. That is correct. There is a gas pipe there or there was that was used on the machine when we assembled cork discs into the crown and whether we used it in the foil spotting operation or not I do not recall. If we needed it we used it.

X Q. 443. Now, these spots and the cork on which they were affixed were always waxed I assume, by means of the paraffin?

A. Well, the cork discs before the insertion of the spot were not heavily waxed with paraffin, they were waxed as we normally waxed cork before we inserted them into the crown. We would not apply paraffin to a cork to which we were going to stick a spot with gutta percha. Now whether [fol. 343] paraffin was applied to the cork and the center spot after the center spot was affixed that I don't recall, perhaps the invoice would show.

X Q. 444. Now, I call your attention to this invoice of February 5, 1925, from defendant to Inecto, which is Exhibit EE and which calls for tin-foil—paraffin coated. What do you understand that that language means?

A. Well, that would indicate that paraffin was applied on top of the tin foil after the spot was applied to the crown. That would mean not only to the tin-foil but to the cork disc surrounding it, and this is stuck with gutta percha.

X Q. 445. After you placed the spot in, you put this layer of paraffin over the entire surface of the interior of the tin?

A. That is right, yes; not only the entire surface of the tin, but of the exposed portion of the cork outside of the tin as well.

X Q. 446. Surely, I understand everything inside of the crimped edge of the shell?

A. That is right.

X Q. 447. Now, the same thing is true, is it not, of this invoice dated January 27, 1925, which is Exhibit DD which calls for "Tin foil-paraffin" coated?

A. Yes, I think that is correct.

X Q. 448. So that at least so far as these two invoices are concerned, one of them calling for 84,000 and the other for 41,000, we know that they were coated entirely with wax over the tin-foil and exposed part of the cork?

A. I think that is correct, yes.

X Q. 449. Where was that wax put on those crowns, in that same machine?

A. That would be done in a subsequent operation if it was gutta percha in the same machine. That is, I think it [fol. 344] would, unless we succeeded in running it with wax and putting the wax coating on the crowns, putting the crowns with the wax applied when hot into the drum. We might have done that, but I believe it was probably done in a subsequent operation on the same machine.

X Q. 450. Now, what is the fact as to your procedure today? Do you have a heated plunger immediately following the punch which punches out the spot and places it on the cork?

A. That is right, yes.

X Q. 451. Since 1925 have you done any spotting on crowns where you did not have a heated plunger following the point where the disc is inserted on the cork?

A. I am not sure, but I believe we always used heated plungers. I know there were, we always had heated

plungers on the machines, with the possible exception of that first machine we got from Johnson, that failed to work. Some of the time those plungers were rendered inoperative when we did not need them.

X Q. 452. Under what circumstances?

A. I would say in hot summer weather; most of the time we use them.

X Q. 453. In such cases how far was it from the point where the paper spot was put on the crown to the drum?

A. Six inches.

X Q. 454. That would be about how many caps?

A. Four.

X Q. 455. When you did have the heated plungers——

A. It might be five, something like that.

X Q. 456. When you did have the heated plungers used how close was it to the point where the center spot was put on the cork? May we have that now in terms of number of stations?

A. There was, after the cutting punch——

[fol. 345] X Q. 457. Yes.

A. There is one idle space made necessary for the thickness of the cutting and feeding mechanism, and after that the heated plunger, and after that, on our present machines, a second heated plunger. After that there is an idle space or spaces, two idle spaces, whichever is necessary mechanically for the machine, and then the drum.

X Q. 458. My recollection of your testimony again is that sometime in March of 1925, you abandoned this gutta percha adhesive you had been using and went back to the White Rock type for Inecto, is that right?

A. Right.

X Q. 459. Just what changes did you make there?

A. From the gutta percha type in 1925 to the White Rock type we removed the heating mechanism, gas flame along the chute of the assembly machine. We inserted a rotating cork-cutting knife to cut the slot in the cork in a position before the crown reached the center spot cutting punch. And we removed the inserting plunger that was in the cutting punch and substituted a properly shaped cutting plunger, the same as I showed you on the sketch I drew before, that would press the edges of the center spot into the slot in the cork. If we had used any heating mechanism

between the center spot cutting die and the drum when we were running gutta percha we rendered that inoperative.

X Q. 460. Let us turn to this 1928 incident connected with the Johnson machines. You told us you got a machine on July 17, 1928, from Johnson. To what extent was that machine actually used?

A. As I told you, we made about 100 gross on it. We might have made a few more that we reconditioned later, [fol. 346] but we found that trial shipment to Goetz proved no good, and we did not use that machine for center spot crowns after that.

X Q. 461. So, so far as that particular machine is concerned, that is out, as far as production is concerned?

A. It is out on all center spot crowns, that is right.

X Q. 462. When did you get that second Johnson machine? I think you told us before it was delivered about August 28th.

A. Right.

X Q. 463. Your invoice here to Goetz shows, and my understanding also of Mr. Goetz' story is, that this 100 gross that was shipped him, which gave trouble, was sent August 14, 1928?

A. That is right.

X Q. 464. There is another 100 gross on August 23rd.

A. Yes.

X Q. 465. That gave no trouble?

A. That is right.

X Q. 466. According to his testimony?

A. That is right.

X Q. 467. How were they made?

A. They were made on that same machine that was delivered July 17th, but before they were shipped out they were put through a second operation on a standard Clark-Johnson cork disc assembly machine in which everything was rendered inoperative except the heating mechanism over the crowns and the spring actuated plunger in the drum. In other words, those crowns were run through that assembly machine, the upper surface was heated, the lower surface might have been too, I am not sure, but the tin-foil spot and the gutta percha underneath it was, the aluminum foil and the gutta percha underneath it was heated, and then it was carried underneath the plunger of the drum and [fol. 347] subjected to pressure while the gutta percha cooled.

X Q. 468. The third invoice to Goetz, dated August 31st, shows a shipment of 25,000 gross. How were those made?

A. What is the date of that?

X Q. 469. August 31st.

A. Yes; I do not think all of those were center spots. May I see the invoice? Give me the batch of them. I will find it.

(Papers handed to witness.)

The Witness: November 24th is the earliest one we have here.

X Q. 470. I show you Exhibit QQQ, an invoice dated August 31, 1928, for 3,000 gross of aluminum centers. How were those made?

A. I would say those were made partly on the second machine that we got from Mr. Johnson on August 28th, I think that was the delivery date, that machine once it got going would be good for about 700 gross a day. And the rest of them that weren't produced on that machine, if any, were produced in the manner that I just described, the combination between the one operation on the July 17th machine and the other operation in a standard machine. We did undoubtedly at that time have an accumulation of crowns that we had sent through that July 17th machine, and if we could have salvaged them by that type of operation, we did it, I am sure.

X Q. 471. The 25,000 on there——

A. Those were without center spots.

X Q. 472. Those were ordinary crowns, were they not?

A. Yes, that is right.

[fol. 348] X Q. 473. Did you make any tin spots in 1928?

A. I believe not, I haven't found any record of it.

X Q. 474. What was the pressure behind you to get into production of these spots in 1928?

A. The Goetz people wanted them as soon as they could get them.

X Q. 475. Had you tried to sell spots to anybody, before that to Goetz?

A. Not outside of what I mentioned before, about the White Rock, I believe not.

X Q. 476. The spots were being used in large quantities, were they not in 1928?

A. Yes, Anheuser-Busch was using them.

X Q. 477. How long had Anheuser-Busch been using them?

A. To my knowledge since 1926.

X Q. 478. Anybody else in the brewery business?

A. Yes, there were others using them. I am not sure that I have my own independent recollection of others but the spots were being made. I have seen reference to crowns made by other manufacturers, Bamberger-Kraus as well as Crown Cork & Seal and others, to various customers around that time and before.

X Q. 479. In your description of the Cohn method you constantly use the past tense in describing the operation of the machine.

A. We do that today substantially the same way. I think the questions are referred to when we adopted it. If not, I used it inadvertently.

X Q. 480. First you said this Cohn method is accomplished by putting in a drop of adhesive or an adhesive-treated paper collet. That adhesive-treated paper collet is covered with what kind of an adhesive?

A. It is a mixture of resin and gums.

[fol. 349] X Q. 481. Is it heat-fusible?

A. Yes, it is commonly used.

X Q. 482. What is this drop of adhesive you refer to?

A. That is a solution, I believe it was casein.

X Q. 483. And is that casein heat-fusible?

A. No, that sets upon drying. We used heat to dry it. We would get it to a point where it is almost dry and then insert the cork disc and then let it continue its drying while it is in the drum and while the crown cools, under pressure.

X Q. 484. And under what circumstances did you use this paper collet. What is the reason for using one kind of adhesive at one time and another another time?

A. When the paper backed crown is demanded we use it, otherwise we use the liquid adhesive because it is cheaper.

X Q. 485. You say that the shell is carried past a gas flame which heated the shell and the adhesive inside of it, and that would be true of both the shell and the paper collet?

A. Yes, there is no change made except the drop of adhesive, substituting the drop of adhesive.

X Q. 486. You say then that the shell with the cork disc in it was passed under a heat mechanism which at one stage

s a localized gas flame and at another stage of our manu-
ture consisted of electrically heated plunger?
A. That is right. Today we use electrically heated
ngers. When we first used this method we used the gas
ne, that is, played a flame of gas on the exposed surface
the cork disc in just one position of the crown. If I
nember rightly at that time there was an electrically
ated plunger in addition to that but we did not get
ough heat on the cork with the aid of the electrically
l. 350] heated plungers used alone at the time, so we
ed a gas flame in addition. We removed one plunger
d substituted a gas flame. The second plunger we left
re. That is by comparison with the previous method of
tting in the center spots in an operation by themselves.
X Q. 487. Now, when Johnson supplied you with these
ter spot machines of his, he had two electrically heated
ngers ahead of the cutting plunger?
A. That's right.
X Q. 488. And you disconnected one of those electrically
ated plungers and put on a gas flame?
A. That's right, in one position. To make it clear, those
chines in addition to having those two electrically heated
ngers also had a long stretch of gas flame that was avail-
e for use when we use the assembler as a cork disc as-
nbly machine and that was also available for use for
e-heating in a gentle fashion the exposed surface of the
k disc when inserting the center spots. In other words
gas flame was used to supplement the two electrically
ated plungers to which you have just referred.
X Q. 489. Next you said the crown was placed under the
ter spot cutting die. That center spot cutting die as I
derstand it not only punches out the disc but carries it
wn and places it on the cork?
A. That's right, it deposits the center spot upon the
e-heated cork disc or a crown that has been centered
der the die.
X Q. 490. How much pressure is there on that at that
e?
A. Just enough to bring it in contact and hold it there.
l. 351] X Q. 491. Is there enough to indent the cork at
?
A. No, if the inserting plunger, where a separate insert-
plunger is used and is smaller in diameter than the
ter spot so that it fits inside of the plunger why that

leaves its mark on the center spot, but I would not say that it indents the cork.

X Q. 492. As a matter of fact, do you use this inserting plunger as well as the cutting punch?

A. On some of the machines at the present time we do and on some machines we do not, we have a solid punch and the punch deposits. Remember that is made for the White Rock type.

X Q. 493. Then next it says that the crown with this disc on it is carried past additional heating plungers.

A. Yes.

X Q. 494. And what do they do?

A. Supply heat.

X Q. 495. Any pressure?

A. No.

X Q. 496. They do not touch——

A. They touch it, there is a spring that holds them down and the spring is just strong enough to hold them in contact to prevent them chattering.

X Q. 497. What are they for, just to supply heat?

A. That's right.

X Q. 498. No pressure?

A. That's right.

X Q. 499. And yet they touch the disc and press it against the cork?

A. Well, I would not say—they touch the disc all right, they touch the center spot.

X Q. 500. Now, at the time of the ultimate downward motion isn't it a fact that you could not run even a strip of steel one-thousandth of an inch between the bottom of that plunger and the cork or disc?

A. Sure, the bottom of the plunger touches the center spot.

[fol. 352] X Q. 501. And is pressing against the cork?

A. I won't answer that question yes because you imply that it exerts a pressure that causes it to dent the cork or adhere the cork and that is not the case. The facts are these; each of these heating plungers that is on the reciprocating head that holds the cutting die, some of them heat the cork before the center spot is inserted and some heat the crown after the center spot is inserted. They are all held in their downward position and prevented from bouncing up by a small spring and we have had one of those springs tested and I think it is a little over a pound that it exerts

in its pressure in its closed, most highly compressed position. Those springs are for the purpose of holding those heat plungers in contact with the center spot. After that the crown goes into a drum underneath plungers that are being pushed down to exert pressure and press the center spot against the cork disc and hold it there and those plungers are actuated by springs which in their compressed position exert a pressure of about 14¾ pounds. I believe I said 12½ the other day but I looked that up and it is really 14¾.

X Q. 502. Are those plungers which immediately follow the cutting punch ever called smoothing plungers?

A. I do not call them that.

X Q. 503. Well, in your patent No. 1,921,808 there is this sentence, at page 1, beginning at line 97, "Before the adhesive has cooled the closure, with the spot adhering to the gasket 4, is next passed under a smoothing plunger 13, which may be heated when desirable and which covers the entire gasket and presses the entire surface of the spot [fol. 353] into contact with the gasket." It that a correct description of the machine as you actually use them in your plant?

A. That is about right. I might supplement that to this extent, the inserting plunger of the cutting punch being smaller in diameter than the spot itself, presses or holds the spot flat in the area that is smaller than the diameter of the spot and as a result the edges of the spot have a tendency to curl upwards or bend upward and these heating plungers in addition to their primary function of imparting heat, do tend to press down the edges. Their real function is to supply heat. If we have enough heat we do not use them.

X Q. 504. When you in your patent said that these plungers press the entire surface of the spot under contact with the gasket, aren't you saying that there is pressure exerted?

A. I daresay I am, the two words seem the same.

X Q. 505. You also have, don't you, some Johnson spotters in which there is not this combined arrangement of your patent?

A. No, not now, not any more. We bought one of them but that was dismantled.

X Q. 506. And that was the one that was purchased in August of 1928?

A. That's right.

X Q. 507. And that is no longer in existence?

A. That's right.

X Q. 508. By the way the Gutmann Company and the people connected with it always patent their inventions?

A. Not always. Of late years we have become patent conscious.

X Q. 509. Did you file a patent application on the use of this 4620 in any way?

A. No, when we inquired regarding it Mr. Wentworth advised us in his opinion it was not patentable, it was an old adhesive.

[fol. 354] X Q. 510. How did you use this 4620? Did you apply it adhesively to the strip of foil?

A. We coated it on the aluminum foil which we got in rolls of a suitable width. We got them about 22 inches wide, so they fit one of our machines, and we applied it with a coating machine.

X Q. 511. You did that coating yourself?

A. Yes.

X Q. 512. Always have?

A. Yes. After that we slit it into one-inch ribbons.

Redirect examination.

By Mr. Warland:

R. D. Q. 513. Mr. Scull asked you, as I recall his cross-examination, about this glazed varnished paper that you used for making center spots first, and you got it from the Irvington Varnish Company?

A. The glazed paper, the varnished paper that we had coated with gutta percha in 1929 by Peters Brothers, the paper was obtained from the Irvington Varnish & Insulator Company. In 1930, March, when we made our first small shipments commercially of paper center spots we obtained the gutta percha backed varnished paper from the Irvington Varnish & Insulator Company.

R. D. Q. 514. Now, did you use that same kind of varnished paper that you used for the center spots, but without gutta percha, prior to 1929?

A. Oh, yes, yes.

R. D. Q. 515. For what purpose did you use it?

A. Our screw caps, bottle caps, we used it in.

R. D. Q. 516. By screw caps you mean screw caps on bottles like ketchup bottles, mayonnaise bottles?

A. Yes.

R. D. Q. 517. There was no gutta percha on those?

A. That is right.

[fol. 355] R. D. Q. 518. But the paper was substantially similar as you had subsequently coated with gutta percha?

A. That is right.

R. D. Q. 519. For how many years had you been using this glazed varnished paper without gutta percha prior to its adoption by you in 1929 for center spots?

A. Oh, since about 1924, when we started making screw caps.

R. D. Q. 520. You testified in answer to a question by Mr. Scull as to the pressure of these various plungers with springs. I understood you had a test made of them.

A. Yes.

R. D. Q. 521. I show you this paper and ask you if that is the result of the test you had made?

A. Yes, that is right. It shows on the heating plunger spring there is a deflection load of one pound five and sixty-seven hundredths ounces, a little over one and a quarter pounds, and the deflection load on the collecting drum spring is 14 pounds 12 ounces. I think the springs are here if you want them.

Mr. Warland: I offer this paper in evidence.

Mr. Scull: No objection.

(Marked Defendant's Exhibit CCCC in evidence.)

Recross-examination.

By Mr. Scull:

R. X Q. 522. My understanding is what is called the deflection load on this Exhibit CCCC on the springs for the plungers in the drum represents the pressure under which the disc is placed while it is being cooled, is that right?

A. That is right.

[fol. 356] R. X. Q. 523. And similarly, does the deflection load of one and one-quarter pounds on the plunger spring represent the pressure under which the disc is held against the cork by that plunger?

A. That is right.

Redirect examination.

By Mr. Warland:

R. D. Q. 524. Just a minute, about how long is the cap held under that plunger that exerts a pressure of one and a quarter or one and three-quarter pounds?

A. There are on some of our machines four such plungers all told, and on some of them six, and the crown is held under each plunger for about 160 degrees of the revolution of the machine, and the machine turns 200 times a minute. It amounts to about six-tenths of a second, if I remember correctly, that the crown is held under heat.

R. D. Q. 525. When you get into the drum how long is it held there? That is under a pressure of 14¾ pounds.

A. It is held between 11 and 12 seconds. There are 38 plungers on the drum, held—I should say the plunger in the drum is held in contact with the crown for 38 positions of the plunger, in other words, while 38 crowns are moving through, so it is 38/200 part of a minute.

William M. Fries, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Fries?

A. Lithographing business.

[fol. 357] Q. 2. How long have you been in the lithographing business?

A. Approximately two years.

Q. 3. Prior to being in the lithographing business what business were you engaged in?

A. Manufacture of crown caps.

Q. 4. With what company and under what name?

A. Crown Cap Manufacturing Company.

Q. 5. Whereabouts was that company located?

A. 201 Thirty-seventh Street, Brooklyn.

Q. 6. Did you ever do any business with the defendant, Ferdinand Gutmann & Company?

A. I did.

Q. 7. Just what was the nature of the business you did with them?

A. I furnished assembled crowns to them and had them put on a spot center.

Q. 8. What kind of center spots did they put on for you?

A. Tin-foil.

Q. 9. Beg pardon?

A. Tin-foil.

Q. 10. Did they ever put any paper center spots on for you?

A. It is possible; I couldn't recall.

Q. 11. I show you two papers and ask you to tell me what those are.

A. They are for 100 gross each of crowns with paper spot centers.

Q. 12. I show you Exhibit 7 and ask you if that is the type of cap on which Gutmann put a center spot for you?

A. Yes.

Q. 13. Did Gutmann return those crowns to you after the spots were put on?

A. They did.

Q. 14. And did you sell those caps with the paper center spots on in the regular course of business?

A. Yes.

Mr. Warland: I offer the two papers in evidence as one exhibit.

(Marked Defendant's Exhibit DDDD in evidence.)

[fol. 358] Q. 15. I show you a bundle of nine orders on the stationery of Crown Cap Manufacturing Company, the first one dated March 28, 1930, and running as late as October 2, 1930, and two others without any date, and ask you to please tell me what those papers are?

A. The one dated August 6, 1930, calls for 600 gross of crowns to be paper spotted. July 10, 1930, 50 gross of crowns to be paper spotted. July 8, 1930, 50 gross for paper spotting. June 9th, 100 gross for paper spotting. May 7, 1930, 1,000 gross for paper spotting. April 5, 1930, 100 gross for paper spotting. March 28, 1930, 1,065 gross for paper spotting. October 2nd, 200 gross for paper spotting. This one is dated March 3rd, with no year, and calls for 200 gross for paper spotting. This is for 800 gross paper spotting.

Q. 16. No year on that one?
A. No year on that.

Mr. Warland: I offer these papers in evidence as one exhibit.

(Marked Defendant's Exhibit EEEE in evidence.)

Q. 17. Did the Gutmann Company put center spots of foil on crown caps for you?
A. How is that?
Q. 18. I mean you have testified and produced orders for paper spots to be put on caps. Did you ever have Gutmann put metal foil spots on crown caps?
A. I did.
Q. 19. And did you do that during the years from 1930 on?
A. I assume so.
Q. 20. I show you a letter from the Crown Cap Manufacturing Company, dated April 23, 1929, in which you ordered Gutmann to put tin-foil center spots on a thou-
[fol. 359] sand gross of decorated composition corks. Did you have that work done on or about that date?
A. Yes, it is my signature to the letter, and it must be that I did.

Mr. Warland: I offer that letter in evidence.

(Marked Defendant's Exhibit FFFF in evidence.)

Q. 21. Did you at a later date put these center spots on yourself?
A. I did.
Q. 22. Do you know approximately what that date was?
A. Well, it must have been shortly after I made the last purchase from the Gutmann Company.
Q. 23. That would be the latter part of '31 or possibly '32?
A. Yes.
Q. 24. Now, what sort of a machine did you get to put these center spots on?
A. It was known as a Johnson spotter.
Q. 25. Afterwards did you have any changes made in that Johnson spotter?
A. No.
Q. 26. Do you know Mr. Nagy?
A. Yes.

Q. 27. Did he ever do any work for you?

A. Yes.

Q. 28. What work did he do?

A. He furnished me with forming dies for forming the crown caps and any special work that I required done.

Q. 29. Did you at any time have a machine in which the empty caps were fed into a hopper and the cork discs secured in the metal shell and the center spot put on the cork disc, all in one machine?

A. I did deliver a regular standard Johnson assembly machine to Nagy for the purposes of having an attachment [fol. 360] added that would spot center at the same time that the cork was assembled in the shell.

Q. 30. And did he deliver such a machine?

A. He did, rather he delivered such an attachment on the machine I sent him.

Q. 31. And that was about when, would you say, approximately?

A. That was early 1933 or late 1932.

Q. 32. And you have been in the plant of the defendant Gutmann Company, haven't you?

A. I have.

Q. 33. And you have seen what we are calling here the Benno Cohn method in which the tin cap and cork lining and center spot are all put on in one machine?

A. Yes, I did.

Q. 34. And it was after that you had Nagy make a machine in which you tried to do the same thing?

A. Yes.

Q. 35. And do you know where that machine is now?

A. I don't.

Q. 36. Why did you leave the crown cap manufacturing business?

A. I sold the Crown Cap Manufacturing Company.

Q. 37. To whom?

A. To the Crown Cork & Seal Company.

Q. 38. That is the plaintiff in this suit?

A. Yes.

Q. 39. Approximately when was that?

A. That was July of 1933.

Q. 40. Now, what became of all your books and records, of the crown cap business at that time?

A. So far as I know they were turned over to the purchaser.

Q. 41. And what became of this machine that you had Nagy put the attachment on in order to put in the cork and the center spot in the metal shell all in one operation?

[fol. 361] A. I left that in the plant when I became disconnected, along with the rest of the equipment.

Q. 42. And did you ever sign this license agreement with the Crown Cork & Seal Company which has been referred to here?

A. I did.

Q. 43. Well, am I to understand that you turned over all the machinery that you had in your plant and your books and records relating to the conduct of the Crown Cap Manufacturing Company, to the plaintiff the Crown Cork & Seal Company, is that right?

A. That is right.

Mr. Warland: That is all.

Cross-examination.

By Mr. Scull:

X Q. 44. You said that the sale occurred in July of 1933, of your business, to the plaintiff here?

A. Yes.

X Q. 45. And did you move out personally or did you remain in charge for a time?

A. I remained in charge.

X Q. 46. About how long?

A. Four months.

X Q. 47. And at the end of that time what happened, I mean did you merely walk out, leave personally or was all the machinery carted away or what was done?

A. No, the machinery remained there but all operation ceased.

X Q. 48. Now, during that four months from July of 1933, when the sale was made to the plaintiff, until the end four months later, was this combination machine about which Mr. Warland has been asking you, operated by you or the Crown Company or by anybody in that plant?

A. No, is was not.

[fol. 362] X Q. 49. You are positive of that, are you?

A. Yes.

X Q. 50. As a matter of fact had you used this combination machine before the sale to the Crown Cork & Seal Company, to any considerable extent?

A. No, I never could get it to where it worked so that it could produce commercially.

X Q. 51. And who were the people who were associated with you in this Crown Cap Corporation and who had any contact with this combination machine, can you name them please?

A. You mean as officers or as mechanics?

X Q. 52. Officers, mechanics or operators.

A. John M. Stark was a mechanic, and he was probably assisted by Mr. John Fries.

X Q. 53. Who is Margaret Mahon?

A. An assembling machine operator.

Redirect examination.

By Mr. Warland:

R. D. Q. 54. You say this combination machine did not work very well. What sort of adhesive were you using to put the crown caps into the metal shell?

A. An albumen adhesive.

R. D. Q. 55. And that required heat to set it, didn't it?

A. It did.

R. D. Q. 56. Now, when you put these completed caps in the rotating drum you heated that drum, didn't you?

A. Yes.

R. D. Q. 57. And that is the reason it would not work, in other words the caps had to be cooled off under pressure and you were trying to apply both cooling and heat under pressure, isn't that right?

A. The difficulty I had was I could not hold the spot center.

R. D. Q. 58. Wasn't it due to the fact that you had heat [fol. 363] and were trying to cool at the same time?

A. I would not say that I fully determined what the difficulty was, otherwise I would have probably corrected it.

R. D. Q. 59. Now, if you had found the difficulty you would have gone on manufacturing in accordance with that method?

A. That was my intention.

AUBREY P. SCUDDER, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business?

A. I am employed by the Village of Rockville Center.

Q. 2. In what capacity?

A. Chemist.

Q. 3. And were you ever employed by a company known as the Kalak Company?

A. Yes.

Q. 4. And what business were they engaged in?

A. The manufacture of carbonated mineral water, and medicinal water.

Q. 5. In that business did they use bottle caps having center spots?

A. Yes.

Q. 6. Just approximately how long were you connected with the Kalak Water Company?

A. From the middle of October, 1916, to December of 1926, about ten years.

Q. 7. What were your duties?

A. Superintendent.

Q. 8. And in your duties as superintendent did you see goods that were purchased and used and sold?

A. Yes, sir.

[fol. 364] Q. 9. Were you shown invoices for the purchase of various materials used in the business of the Kalak Company?

A. They would be sent to me and I would O. K. them and they would be returned.

Q. 10. I show you some invoices on the stationery of the Crown Cork & Seal Company running from June 1st, 1917, to November 30, 1917, and I wish you would look at those and tell me what those are for.

A. Those orders cover orders for crown seals that we used.

Q. 11. Did they have center spots on them?

A. Yes.

Q. 12. Do you know what sort of metal was in the center spots, what it was made of?

A. I understood it was tin-foil or tin; a very small disc.

Q. 13. Like Plaintiff's Exhibit 8 which I show you?
A. Yes, I should say yes.

Mr. Warland: I offer this batch of invioces in evidence as one exhibit.

(Marked Defendant's Exhibit GGGG in evidence.)

Met pursuant to recess at 2 P. M.; present as before.

AUBREY P. SCUDDER, resumed the stand.

Direct examination continued.

By Mr. Warland:

Q. 14. Do you know how this spot of tin-foil was fastened onto the cork?
A. No, except I imagined it was pasted on in some way.
[fol. 365] Q. 15. You do not know what the paste or adhesive was, of your own knowledge?
A. No, I couldn't say.
Q. 16. Did the Kalak Company buy center spot crowns from any other manufacturers besides the Crown Cork & Seal Company?
A. A concern named Bond Company.
Q. 17. I show you a paper and ask you to tell me what that is?
A. This is for 600 gross of caps. I imagine that these was pressed in in some way or cut in, whichever they may call it. Whether that was glued besides that, I do not know.
Q. 18. Did you get the caps called for by that invoice and use them?
A. Yes.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit HHHH in evidence.)

Q. 19. I show you a bundle of invoices from the Crown Cork & Seal Company, made out to Kalak Water Company, running from July 23, 1920, to June 19, 1929, and ask you whether you can state whether or not the Kalak Company

got the crowns mentioned in those invoices, and were they all center spot crowns, and did the Kalak Company use them?

A. Up to 1929?

Q. 20. Yes.

A. I was not with them after 1926.

Q. 21. Pick out those subsequent to 1926 and hand them back to me.

A. Those two have got my initials; those haven't (indicating).

Mr. Warland: I offer in evidence the invoices dated July 23rd and August 31st, 1920, as one exhibit.

(Marked Defendant's Exhibit IIII in evidence.)

[fol. 366] Q. 22. The remainder of these which you handed me have not got your initials on them?

A. No.

Q. 23. So you are not sure whether you got them or not?

A. I am almost certain I did. Oftentimes if they came in they would not even send them to me for an O. K., but they came in.

Q. 24. Did the Kalak Company ever use any bottle caps that did not have a center spot on?

A. In the beginning, the first part of my time, we had just a plain cork until they switched over to them centers.

Q. 25. After that they used the center spots on all of them?

A. Yes.

Cross-examination.

By Mr. Scull:

X Q. 26. How extensive was the business that this Kalak Company did?

A. Well, it is internationally known.

X Q. 27. Well, I want to get an idea of about how many thousand bottles a month were sold, roughly.

A. It is pretty hard for me to guess.

X Q. 28. Was it a thousand a month?

A. A thousand bottles?

X Q. 29. Yes.

A. Oh, yes.

X Q. 30. Well, was it ten thousand a month?

A. I should say yes, they had a very good business.

X Q. 31. Was it more than ten thousand bottles a month?

A. Yes, I should say it was over ten thousand.

X Q. 32. How were these caps put on the bottles, were you familiar with that at all?

A. It was capped on one of the regular Crown Cork & Seal machines.

X Q. 33. You had a regular capping machine?

A. Yes.

[fol. 367] X Q. 34. And that was working pretty consistently at all times, pretty continuously?

A. Yes.

X Q. 35. That is from day to day that capping machine was working?

A. Yes.

X Q. 36. And working throughout the full working day?

A. Yes.

X Q. 37. At what rate was that capping done, have you any idea?

A. Well, in the first part of the business they had the one unit machine, I think it was No. 705, your machine. From that they went into the low pressure machine I think that was 36 bottles a minute.

X Q. 38. 36 a minute?

A. I just forget what the rate was.

X Q. 39. How many of these capping machines did they have?

A. Well, the new machine took care of the capping itself.

X Q. 40. How many of those did you have?

A. Just the one.

X Q. 41. When did that come in, certainly before 1926 wasn't it?

A. Yes, I should say possibly in 1924.

The Court: How long a day did they work?

The Witness: Eight hours.

The Court: Eight hours?

The Witness: Yes, your Honor.

The Court: You did 17,000 a day then, didn't you?

The Witness: Well, there was an hour for lunch.

The Court: Then it was seven hours a day that you worked?

The Witness: 8 to 5 was the hours, with an hour for lunch.

[fol. 368] The Court: Well, that would be eight hours.

The Witness: Yes.

X Q. 42. Do you remember testing any spots or spot crowns provided for the Kalak Company by the Gutmann Company?

A. I think we did, but just exactly when, or the nature of it I cannot recall.

X Q. 43. What is your recollection, was it a long time before you left or about the time you left?

A. Long before that.

X Q. 44. But Gutmann did not supply you with any spot crowns either for test purposes or any other reason in 1925 or 1926, did they?

A. Not that I can recall.

Redirect examination.

By Mr. Warland:

R. D. Q. 45. These crowns you say you got from Ferdinand Gutmann Company, were they spot crowns or were they plain crowns without a spot?

A. We had some of both, natural cork and one with tin centers.

R. D. Q. 46. Now I show you three invoices from the Ferdinand Gutmann Company dated December 16, 1918, July 16, 1919 and February 1, 1919. Please look at those and tell me whether they say anything about tin centers?

A. No, I don't think so.

R. D. Q. 47. If they had had tin centers that would appear on the bill, wouldn't it?

Mr. Scull: I object to that.

Mr. Warland: I withdraw the question.

R. D. Q. 48. All the invoices from the Crown Cork & Seal Company that I have shown you had tin center spots on the invoices, didn't they?

A. Yes.

[fol. 369] R. D. Q. 49. And these have not?

A. These haven't, not that I can see.

Mr. Warland: I offer these invoices in evidence.

(Marked Defendant's Exhibit JJJJ in evidence.)

(Witness excused.)

CHARLES H. RASMUSSEN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Rasmussen?
A. I am employed by the Ferdinand Gutmann Company.
Q. 2. How long have you been employed by Ferdinand Gutmann Company?
A. Fifteen years, a little more.
Q. 3. Before you were employed by Ferdinand Gutmann & Company what other companies were you with?
A. Just prior?
Q. 4. Yes, prior.
A. I was with the Doehler Die Casting Company.
Q. 5. About what year would that be?
A. 1919.

The Court: What is your position?
The Witness: My position is superintendent.

Q. 6. You mean factory superintendent?
A. Yes.
[fol. 370] Q. 7. Prior to your employment with the Doehler Die Casting Company where were you employed?
A. With the Ajax Cork & Seal Company of Passaic, New Jersey.
Q. 8. When were you there, about?
A. About 1918; I was with them just one year.
Q. 9. Were you ever employed by the Crimp Cork Stopper Company?
A. Yes.
Q. 10. Where were they?
A. Second Avenue and 12th Street, Brooklyn.
Q. 11. When was that?
A. I was with the Crimp Cork Stopper Company from 1911 until the latter part of 1916.
Q. 12. Did you have anything to do with the manufacture of the first center spot crowns by Gutmann?
A. Yes.
Q. 13. When did they first make any center spot crowns?
A. The latter part of 1924.
Q. 14. Who did you make them for?
A. The Inecto Company.

Q. 15. How was the first lot made that you made for the Inecto Company?

A. The first lot of center spot crowns we tried to make for the Inecto Company were of the cut-in variety.

Q. 16. That is what has been referred to here as the White Rock or Millis type?

A. The White Rock or Millis type crowns, yes.

Q. 17. Approximately how many of those did you make for the Inecto Company in 1924?

A. There was a shipment of approximately 100,000 went to them.

Q. 18. Then did you make any different kind of crown for them, or center spot, for the Inecto Company?

A. Yes, there was——

Q. 19. What other kind did you make?

A. We made some crowns for the Inecto Company of [fol. 371] the B type crowns, and we made about a three months' supply for them with gutta percha.

Q. 20. You mean that the center spot was secured by gutta percha?

A. Gutta percha.

Q. 21. How was the gutta percha put on the center spot?

A. The gutta percha and the tin-foil was mounted together, supplied to us by the Beechnut Foil Company.

Q. 22. Where did you get the gutta percha from?

A. That was something that was bought, I believe it was from the Bishop Gutta Percha Company, but I did not have anything to do with the purchase of that. Mr. Cohn bought that.

Q. 23. You have nothing to do with the purchase of material?

A. Not that particular type of material.

Q. 24. Approximately how many of these center spot crowns with the center spots secured by gutta percha did you make for the Inecto Company?

A. They used about 100,000 a month, and there was a three months' supply, something more than 300,000, there is usually a slight over-run.

Q. 25. As I understand you, the tin-foil was first put on the gutta percha, and then the foil with the gutta percha coating was cut in strips?

A. We received it cut in strips and rolled.

Q. 26. How did you put the cap on? Did you feed it through a machine?

A. Yes.

Q. 27. What sort of a machine did you use to do that?

A. It was a Clark-Johnson type machine, the same as the one we use to assemble the crowns with.

Q. 28. How about the die for the cutting of this center spot, where did you get that from?

A. That was ordered and delivered by Mr. Nagy.

[fol. 372] Q. 29. These invoices from Nagy that have been introduced in evidence here were for the center spot die, is that right?

A. Yes.

Q. 30. You say you shipped gutta percha coated center spots to the Inecto Company for about three months; then what kind of caps did you ship to them after that?

A. Then we reverted back to the original type or Millis type or White Rock type.

Q. 31. You mean with a slot in the cork?

A. With a slot in the cork and the coil cut and inserted into that slot and held securely.

Q. 32. Prior to the making of the gutta percha caps for the Inecto Company had you had any trouble in trying to make these Millis type caps?

A. Yes.

Q. 33. What was the trouble?

A. We could not get the center spot to remain securely.

Q. 34. What caused that?

A. There was an error in our idea of how to make it.

Q. 35. While you were shipping them the gutta percha caps did you experiment or did you do any further work in trying to perfect this method of inserting the cap?

A. Yes, I did.

Q. 36. Did you succeed in inserting the cap after that?

A. Yes.

Q. 37. When did you next, so far as you can recall, ship to the Inecto people caps with a center spot secured like the White Rock type?

A. I believe April of 1925.

Q. 38. Has the Gutmann Company been shipping to the Inecto Company since April of 1925——

A. Yes.

Q. 39. Just a minute, caps, made like the Millis type.

A. Yes.

Q. 40. Approximately how many a year since 1925 have [fol. 373] you sold and shipped to them?

A. Now their requirements are a little more, it is about two and a half million a year that they get now.

Q. 41. What was it around 1925 or 1926?

A. It was less than half of that. Our orders would verify that.

Q. 42. Now these caps that you shipped to the Inecto Company, both gutta percha and tin-foil, are they composition cork or natural cork?

A. Natural cork.

Q. 43. Did you have anything to do with the machine that made these first caps for the Inecto?

A. Yes.

Q. 44. Were any changes made in the Clark-Johnson assembling machine?

A. There were alterations made in the machine to provide a means for accomplishing what we wanted to accomplish.

Q. 45. And were those alterations made under your direction and supervision?

A. Yes.

Q. 46. And just what alterations did you make?

A. You mean after the machines—after we have assembled the crowns completely and they are ready to put on spots, do you want to know what alterations are made then?

Q. 47. What do you do in order to put center spots on the cork disc?

A. In the paper position of the machine we take off the paper punch and in its place we put in a foil cutting punch which is of a self-contained type. Inside that cutting punch there is a compound forming punch.

Q. 48. Now what about the heating of these caps, was the cork heated at all?

A. Not in the Millis type.

[fol. 374] Q. 49. How about your gutta percha type, were the corks heated there?

A. Yes.

Q. 50. How were they heated?

A. With the aid of a gas flame, a long gas flame to be put under the chute of the crown hopper leading from the hopper to the dial.

Q. 51. How did the gas come out of that pipe to get a flame, did it come out in one flame or were there a number of openings?

A. No, there was a series of flames.

Q. 52. Now, do you know anything about the manufacture of gutta percha caps in 1928 for the Goetz Brewing Company?

A. Yes, we got a machine from the Johnson Machine Works at that time.

Q. 53. Is that the machine referred to in the invoice here dated July 17, 1928?

A. I don't know. May I see it?

Q. 54. I show you Defendant's Exhibit S, which is dated July 17th, 1928, an invoice from the Johnson Machine Works, do you remember getting any machine around or about that date from Johnson?

A. Yes.

Q. 55. Tell us about that machine, did it or did it not have a hopper?

A. It had a hopper.

Q. 56. And did it or did it not have a drum?

A. It had no drum.

Q. 57. Did you make any center spot caps with gutta percha securing the center spot on that machine?

A. Yes.

Q. 58. And were those satisfactory?

A. Not entirely.

Q. 59. And was that the first shipment that you made to the Goetz Company?

A. Yes.

Q. 60. What did you do after you found those were not satisfactory?

A. We got a report from the Goetz Company claiming that [fol. 375] the spots were coming off and we took the crowns that had been made on this machine and we put them through a standard Clark-Johnson machine, pre-heating the entire mass and putting it in the drum and cooling it

in the drum under pressure and then shipped the crowns and they seemed to be satisfactory.

Q. 61. What happened to that machine, did you buy another one like it?

A. There was an order for two more of these with Mr. Johnson at the time and I personally cancelled that order.

Q. 62. I show you an invoice dated August 28th, 1928, Defendant's Exhibit P, for one tin-foil machine from Johnson, did you get that machine around that date?

A. Yes.

Q. 63. And did that machine have a collecting drum on it?

A. Yes.

Q. 64. And did you get other machines subsequently from Johnson with collecting drums on it?

A. Yes.

Q. 65. Did you have any serious trouble after you got the Johnson machine with the collecting drum, about the spots falling off?

A. No.

Q. 66. There has been testimony given here and invoices produced by the Goetz Brewing Company showing a very large number of crowns shipped from 1928 up to date by the Ferdinand Gutmann Company. Were those crowns made under your supervision?

A. They were.

Q. 67. Do you know whether they were actually made, sold and delivered to the Goetz Company on or about the dates mentioned in those invoices?

A. Yes.

Q. 68. Now, in any of the machines used by the Ferdinand Gutmann Company for cutting the center spots was [fol. 376] your cutting punch ever heated?

A. No.

Q. 69. Always cold?

A. Always cold.

Q. 70. Now, there has been a patent introduced here in evidence issued to Benno Cohn. Are you familiar with that patent?

A. Yes.

Q. 71. When did the Gutmann Company first make center spot crowns according to the method shown by that patent?

A. I believe it was in 1932.

Q. 72. Just how does the method in that patent work?

A. Why, it differs to the extent that the job is completed in a single operation, whereas previously it had been accomplished in two operations.

Q. 73. Do I understand that in this Benno Cohn method you take the tin cap and put in the cork lining and the center spot all in one machine?

A. Exactly.

Q. 74. Previously you had required one machine to put the cork lining in, and then the caps had to be run through another machine to put the spot on, is that right?

A. Yes.

Q. 75. How about the drum in the machine of this Benno Cohn method? Is the drum cool or hot?

A. We artificially cool that drum.

Q. 76. How do you cool it?

A. With an air jet.

Q. 77. What about the other plungers in the machine? Are they cool or hot?

A. We have heated plungers on the machine; they are naturally hot.

Q. 78. Have you figured out about the length of time that a center spot is held under one of these heated plungers?

A. Well, that varies, on some of our machines we have more than on others.

[fol. 377] Q. 79. What would the average be, about?

A. Oh, probably five to six-tenths of a second. We did have a check on that not very long ago; I believe Mr. Cohn has a record of that date. I haven't it available.

Q. 80. What is the production of the machines that the Gutmann Company use now? How many caps do they make a minute, approximately?

A. About 200 a minute.

Q. 81. That 200 a minute includes the entire operation of putting the cork disc in and the center spot on top of that and securing the center spot to the cork disc?

A. Yes.

Q. 82. And that is how many gross a day, approximately?

A. About 700 gross.

Q. 83. On how long a day are you figuring, an eight-hour day?

A. Eight and two-third hours.

Q. 84. I understood you to say you had figured out the time of contact and the amount of pressure on these various operations.

A. Yes.

Q. 85. I show you a letter written by Ferdinand Gutmann to me referring to that. Will you please look at that and see if it refreshes your recollection?

A. Yes.

Q. 86. I notice you say, "Thus, a summary of contact with heated plungers is as follows:

"Against the exposed surface of the cork disc —one plunger	0.067 sec.
"Four plungers each 0.133 seconds, Total	0.532 sec.
Total	0.599 sec.

"Or approximately six-tenths of one second.

[fol. 378] "Contact between hot plunger and exposed surface of center spot:

"Two plunger-, each 0.133 seconds, Total	0.266 sec.

"Or approximately ¼ of a second."

Then you say: "After the above, the assembled crown is cooled in the collecting drum, under a pressure of 14 lbs. 12 oz. for 38 strokes of the machine, or 11.400 sec."

Are those figures correct according to the test you made at that time?

A. Yes.

Q. 87. Now you know about this adhesive 4,620 which was used by the Gutmann Company in some of its caps?

A. Yes.

Q. 88. Do you know when that was first used by the Gutmann Company?

A. That was early in 1933.

Q. 89. What time in 1933?

A. It was the early part of the year, before Summer had gotten in. The exact date I do not hardly think I could remember offhand.

Q. 90. Did you keep any records of these things at all as to dates or did you leave that to somebody else?

A. Those things are largely passed into our factory production records and while I checked them they are passed into the office and kept there.

Q. 91. You do not keep any independent track of them yourself?

A. No.

Q. 92. What did you do first about using this 4,620, at first. Did you run it experimentally or commercially or how did you begin the operation?

A. Naturally we would run small experimental lots at first.

[fol. 379] Q. 93. When was that, early in 1933?

A. It might have been previously. We were actually in operation with 4,620 in the Summer of 1933 I believe.

Q. 94. Did you use this 4,620 on glazed paper spot caps?

A. We have never used it successfully.

Q. 95. It does not work as well as it does on tin-foil?

A. No.

Q. 96. About what proportion would you say of paper spots are made to metal foil spots by the Gutmann Company?

A. Offhand the bulk of our production is metal spot, probably something less than 10 per cent. might be paper spots.

Q. 97. Now, do you recall the visit of plaintiff's counsel and Mr. Fusting to the defendant's plant in 1933?

A. Yes.

Q. 98. And did you see them there on that day?

A. Yes.

Q. 99. Were you running a machine there on that day?

A. Yes, we showed them a machine in operation, of the Benno Cohn type running on No. 4,620.

Q. 100. Were strips of material and samples of caps given to them at that time?

A. I did not give them to them but I understand Mr. Cohn did.

Q. 101. I show you a crown and I ask you if you remember whether or not that is the type that was being run in August of 1933 when Mr. Fusting and Mr. Darby came there?

A. I can tell you if I should be allowed to pull the foil spot off.

Q. 102. Pull it off.

A. Yes, it is.

Q. 103. What is that, 4,620?

A. It is 4,620.

Q. 104. Was that a commercial order that you were making at that time?

A. Yes.

[fol. 380] Q. 105. You were making it for the Rubsam & Horrmann Brewing Company in Staten Island?

A. Yes, sir.

Mr. Warland: I offer that cap just examined by the witness in evidence.

(Marked Defendant's Exhibit KKKK in evidence.)

Cross-examination.

By Mr. Scull:

X Q. 106. On these machines that you are using at the present time, which you say is the Cohn or combined machine, you do use heating plungers after the spot is cut and placed on the crowns, don't you?

A. Yes.

X Q. 107. And that as I understand is not the next but the next to one station away from the point where the spot is deposited, is that right?

A. Yes, on some of our machines it might be more, it might be the third station.

X Q. 108. You say it might be the third station?

A. Yes.

X Q. 109. It is either the second or third?

A. Either the second or third.

X Q. 110. How many seconds is it from the time the spot is deposited on the heated cork before it is pressed by that heated plunger?

A. It would be two revolutions of the machine if it is in the second station or three if it is in the third position.

X Q. 111. And it is going at 200 a minute?

A. 200 a minute, yes.

X Q. 112. Has the cork cooled off very much from the station where the disc is deposited on it until the heated plunger comes down on the disc?

[fol. 381] A. Not materially, I suppose there is some cooling takes place.

X Q. 113. And how many of these heated plungers do you use after the disc is deposited?

A. On some of our machines we have two and on others three.

X Q. 114. Did you ever put on spots without using heated plungers?

A. We have used or tried to use gas jets but we find that we can get better control with heated plungers, more successful.

X Q. 115. Gas jets apply no pressure at all, do they?

A. No.

X Q. 116. So what you have found is it is desirable to have some pressure from these plungers as well as heat from them?

A. It is not entirely necessary, it is an advantage.

X Q. 117. It is such a necessity you never do without them?

A. We do not, no.

X Q. 118. In the cutting punch as it is used today on your machines, do you use a single punch or do you use a compound punch?

A. We use both.

X Q. 119. What proportion of the machines are one and what the other?

A. Just about an even proportion, half one way and half the other.

X Q. 120. Where you have the compound punch is either part of the compound punch carried down positively?

A. Yes——

X Q. 121. Or are they both spring-actuated downward?

A. The punch itself is positively operated by an independent cam separate from the cutting mechanism.

X Q. 122. In other words, the thing which carries the spot after it has been cut down, onto the cork, is positively actuated downward?

A. Yes.

[fol. 382] X Q. 123. And you can regulate that, I assume, as to the height to which it will go down?

A. Yes.

X Q. 124. And at the time it is all the way down is the cork held tightly under that plunger?

A. Yes.

X Q. 125. Where you have the single cutting punch is that actuated positively?

A. Yes.

X Q. 126. And that similarly, I suppose, carries the spot directly down against the cork disc?

A. Against the cork disc, yes.

X Q. 127. And presses it against it?

A. Deposits it there.

X Q. 128. Under considerable pressure, I take it?

A. Well, it is under pressure, yes, sir.

X Q. 129. When you abandoned the gutta percha in 1925 and reverted to the Millis or White Rock type, what change did you have to make in the machine or did you make in the machine?

A. When we abandoned——

X Q. 130. The gutta percha in 1925 and went to the Millis type, the type you are using today, just what changes did you make in the machine?

A. There were no material changes made outside of taking off this here gas equipment that we had, increasing the size of our punch, installing a scoring knife and revolving that scoring knife.

X Q. 131. You did increase the size of the punch?

A. Yes.

X Q. 132. That was because you wanted to have additional material that you could tuck down into the cork and still leave the spot the same diameter that it had been before, is that right?

A. I may be wrong in my statement; I believe that was done previously, and we made the gutta percha spot slightly larger than it should be. I believe that change was made previously.

[fol. 383] X Q. 133. What change did you make after you had abandoned this gutta percha and went to this Millis type?

A. The chief change which we made was in the scoring knife; that is what made it possible for us to accomplish that job successfully. We got that scoring under control so we could be sure it positively scored and it did not score too deep.

X Q. 134. What I am trying to get at is what changes did you make in the machine, let us assume you had it set up to put on the spot with the gutta percha, as you said,——

A. Yes.

X Q. 135. I want to know what change you made in that in order to make it make the Millis type of spot.

A. Well, we inserted another forming punch inside the cutting punch that would cut that disc after it was cut, and then we took off the gas equipment, and then the changes I have mentioned before in the scoring knife. Those were the most important things.

X Q. 136. Who looked after that change, who did it?

A. I did it myself, most of it.

X Q. 137. You did it yourself?

A. Most of it, with the aid of mechanics I had in charge.

X Q. 138. You had a number of mechanics who were there and knew about this change at that time?

A. I wouldn't say they all knew about it.

X Q. 139. Well, there were a number of mechanics who did know about it?

A. There was one that was working on the machine at that time taking care of our standard crown production; naturally he paid some attention to that work also.

X Q. 140. There must have been somebody who made the internal plunger.

A. Yes.

X Q. 141. Which, as I understand, has a cupped face?

A. Yes, cupped end.

[fol. 384] X Q. 142. You did not take the old flat-faced plunger and simply cut a recess in that?

A. No.

X Q. 143. You made a new one?

A. We made a new one.

X Q. 144. Who did that?

A. I guess one of the men in the shop: usually under those conditions I would make a sketch of what I would want and give it to one of the men to make up.

X Q. 145. Now, going back to the beginning of this gutta percha episode, my understanding is you were making and having trouble with the Millis type of spot, having trouble in the sense that the customer was complaining because the thing was being cut too deep, and then you got this gutta percha coated foil from Beechnut and you made these changes in the machine. How long after you got that

gutta percha foil was it before you were producing successfully these gutta percha spot crowns, as you say?

A. Offhand, of course, I couldn't hardly say; I think our office records would perhaps definitely show the dates when we shipped the first ones.

X Q. 146. Am I to understand you just had this foil come in, that you took the machine and stuck this foil in it and put on the belt and away it went and it began to produce successfully these spotted crowns?

A. No, we had some little adjustments to make.

X Q. 147. Probably took you half a day?

A. Probably took more.

X Q. 148. How much more?

A. About one day probably.

X Q. 149. What is your recollection about the way you put the paraffin on these Inecto crowns in 1925?

A. Just what do you mean?

X Q. 150. These Inecto crowns were covered with paraffin [fol. 385] over the entire surface of the cork, including the foil?

A. Yes. My recollection of it is that it was done in a separate operation after the foil had been applied. We had a dropper installed on the machine that as it would contact the cap with the foil spot in it, would permit a drop of paraffin to drop on the foil spot, and the next division would spread it, and we carried it along and out at the end of the machine and we took the plungers of the drum off and just left the caps to ride around the open drum for the paraffin to harden before being discharged on conveyor belts.

X Q. 151. And are you very positive that is the way you did it?

A. I feel so.

X Q. 152. I ask you if you are very positive about it, are you?

A. Yes.

X Q. 153. You do not think there is any possibility it could have been done right on the same machine on which you were doing the spotting?

A. That is the same machine it was a subsequent operation. We only had one machine to do anything with that size cap it is a small size cap.

X Q. 154. Did you ever have any trouble about that waxing operation?

A. Yes it was a nasty process and unsatisfactory to Inecto.

X Q. 155. Why was that?

A. It is so hard to control the drop.

X Q. 156. You mean you were getting so much wax on the disc?

A. Yes, in order to be sure that there was a thorough covering all over the result was that you applied too much. It caused trouble in their capping machine and made a rather unclean package of it.

[fol. 386] Redirect examination.

By Mr. Warland:

R. D. Q. 157. Mr. Scull was asking you something about this gas flame. Where was that gas flame, was it on the cork before the center spot was cut or after the center spot was cut?

A. Which particular operation are you asking about?

R. D. Q. 158. You said in one step of the operation you had a gas flame.

A. Do you mean Inecto.

R. D. Q. 159. Take Inecto with the gutta percha.

A. That was prior.

R. D. Q. 160. Have you ever had a gas flame put on the cork disc after the spot has been cut?

A. No.

R. D. Q. 161. When you used gutta percha for Inecto there was no scoring knife of course on the punch then?

A. No.

R. D. Q. 162. Just a plain punch?

A. Yes, a single punch that cut the foil disc and deposited it on the cork.

R. D. Q. 163. Now Mr. Scull asked you about the name of the man that made changes. Would that man if he made a change, know what that change was for?

Mr. Scull: I object to that.

Mr. Warland: I withdraw the question.

R. D. Q. 164. Would that man know?

A. I should think so.

R. D. Q. 165. As I understand you you cannot get a satisfactory commercial result on the Johnson machine until you had the collecting drum put on is that right?

A. You are talking now about 1928?

[fol. 387] R. D. Q. 166. 1928.

A. The Standard Crown. We had to have them under pressure in a collecting drum in order to get a satisfactory product.

R. D. Q. 167. And these machines that came from Johnson in August of 1928 had a collecting drum on them?

A. Yes.

R. D. Q. 168. All except the first one?

A. Yes.

Recross-examination.

By Mr. Scull:

R. X Q. 169. Did I understand you to say in this gutta percha job of 1925 that you have been telling us about you had a single punch there or was it a compound punch?

A. It was a punch with an inner punch operated independently of the outer one.

R. X Q. 170. The outer punch being the cutter and the inner being the one that deposited the spot on the crown?

A. That is right.

Jay Bernard Eisen, called as a witness on behalf of the defendant having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. Where are you employed, Mr. Eisen?

A. Ferdinand Gutmann & Company.

Q. 2. And what are your duties?

A. At the present moment?

Q. 3. Yes.

A. At the present moment I am in charge of research and development and doing cost work.

[fol. 388] Q. 4. When did you first go to work for the Gutmann Company?

A. In June of 1925.

Q. 5. What were your duties when you first went there?

A. At that time I was doing work on costs, calculating new jobs and the cost of jobs going through and keeping records of production.

Q. 5. Do you know whether the Gutmann Company at the time that you went there and since has been selling center spot crowns in which the spot is secured in a manner shown in the White Rock or Millis type?

A. Yes, they were making them at that time.

Q. 7. When you first went there?

A. When I first went there and they are still making them.

Q. 8. And that is for whom?

A. For the Inecto Company. That is the scored cork with the center spot tin-foil put in.

Q. 9. Do you know approximately how many a year the Gutmann Company is making for the Inecto?

A. At that time I should judge that we made about one million and a half a year and there has been an increase and I think it is quite actually over two million right now.

Q. 10. Now do you know anything about the making of center spots for the Goetz Brewing Company?

A. Yes.

Q. 11. What did you have to do with that?

A. Well, I kept the records of production.

Q. 12. Did you see the caps being made?

A. Yes.

Q. 13. And do you know when they were made?

A. Yes.

Q. 14. When was the first shipment made to Goetz that you know of?

A. Of center spot crowns do you mean?

[fol. 389] Q. 15. Yes.

A. After the first half of 1928.

Q. 16. How were those center spots secured?

A. By gutta percha.

Q. 17. How was the gutta percha fastened to the cap and to the foil when you first began?

A. At first we used a ribbon of gutta percha and a ribbon of foil and fed the two simultaneously, one above the other.

Q. 18. As I understand you the cutting punch came down and cut these two strips and as it cut it pressed them together on to the cap is that correct?

A. That is correct.

Q. 19. And about how long did you keep up that method?

A. Less than a year.

Q. 20. And about how long did you keep up that method?

A. A little less than a year.

Q. 21. And what method did you employ?

A. Then we had the gutta percha calendered on to the aluminum foil and we used one strip consisting of the two materials together.

Q. 22. You mean——

A. The aluminum and the gutta percha adhered together that is calendered on.

Q. 23. Do you know anything about the trouble that Gutmann had with the first shipment that went to the Goetz Brewery?

A. Yes.

Q. 24. What can you tell us about that?

A. There was a lot of correspondence on it as I remember it. On the first hundred gross that we shipped there they were rejected, as they claimed the spots fell off. Then we got to work in our plant and we ran some more through the same machine that we had for putting the spots on—that is with the second hundred gross or approximately that, we ran them through the second time and then we run them through a regular assembling machine so that we [fol. 390] could get the benefit of the pressure in the drum of the assembling machine that we had available then.

Q 25. I show you Defendant's Exhibit S which is an invoice from the Johnson Works dated July 17, 1928, for one tin-foil machine, do you know anything about that machine, the purchase and use of it?

A. Yes, I remember seeing the machine come in.

Q. 26. And when that machine came in did it have a collecting drum on it?

A. No, it did not.

Q. 27. And was it on that machine that the first crowns were made, which was sold to the Goetz Brewing Company, which developed trouble?

A. That's right.

Q. 28. And you cured that?

A. Yes.

Q. 29. How?

A. By running through another batch of samples through the same machine which was the only foil spot machine that we had in the house outside of Inecto and then taking

those crowns and passing them through our regular assembling machine, with all its parts taken off except the collecting drum, where the cap would get the benefit of the pressure in the collecting drum.

Q. 30. I show you an invoice from the Johnson Machine Works to Ferdinand Gutmann dated Aug. 31, 1928, calling for "One tin-foil machine, standard drum." What can you tell us about that?

A. That is the first machine that we were able to make spot crowns that were satisfactory.

Q. 31. And did that machine have a collecting drum?

A. Yes.

Q. 32. As I understand these invoices, other machines were bought from Johnson?

A. That is right.

[fol. 391] Q. 33. And did these subsequent machines have a collecting drum?

A, That is right.

Q. 34. And did you have anything to do with the figuring the cost of production on these caps?

A. Yes, I had the record, the figures.

Q. 36. You have a record of when you first figured the cost of aluminum-foil center spot discs secured with gutta percha?

A. That was in June of 1928, June and July, I made cost calculations on that subject.

Q. 37. Did you, during 1928, have charge of the records of production of center spots?

A. That is so.

Q. 38. You kept that work up for how long?

A. Until March, 1930; at that time we were developing the use of "Filmaseal," and most of our time was taken up with the development of that subject.

Q. 39. "Filmaseal" had nothing to do with these center spots at all?

A. Absolutely not.

Q. 40. Do you know about what the speed of production of machines that Gutmann has been running and is running, is?

A. Yes.

Q. 41. What is it a minute?

A. About 200 per minute.

Q. 42. That is how many gross a day?

A. Approximately 700.

Q. 43. Certain invoices have been produced here showing the sale of gutta percha and metal-foil to the Gutmann Company. Do you know about the purchase of those materials, or did you see those invoices? Have you anything to do with that?

A. From whom?

Q. 44. From, I think some from Peters Brothers and some from Bishop Gutta Percha Company.

A. Yes, we purchased ribbon from the Bishop Gutta [fol. 392] Percha Company, one-inch ribbon, and we purchased, we had the gutta percha calendered onto the aluminum by the Peters Brothers Rubber Company.

Q. 45. Do you know anything about the making of the first glazed center spot crowns by Gutmann & Company, when that was done?

A. I do not know exactly, but it was in 1930, I believe.

Q. 46. That was the first shipment?

A. I couldn't say offhand.

Q. 47. Have you got any records showing when you first figured the cost of paper spots?

A. I have, yes.

Q. 48. Can you produce those records? I show you Defendant's Exhibit UUU, an invoice from Peters Brothers, dated April 10, 1929, for five yards brown paper coated with tissue. Does that refresh your recollection as to when you first figured the cost of paper?

A. Yes, of course.

Q. 49. It was about that time?

A. Yes.

Q. 50. When Gutmann Company first made center spots with metal-foil or any other material, how was that put on, I mean was it put on in the same machine in which the cap was made or in a separate machine?

A. Are you speaking of the regular crowns or Inecto size?

Q. 51. Regular crowns.

A. Well, we have machines that—at the present time we have machines that are used for doing both, that is, we can assemble both an ordinary crown in there or the combination of an ordinary crown with a spot.

Q. 52. When was the method first used of putting the cork discs in the shell and a center spot on the cork disc, both operations in one machine, when was that done?

A. About March, 1932.

[fol. 393] Q. 53. Prior to that, when you wanted to put a center spot on, the cap was assembled in one machine, is that right?

A. That is right.

Q. 54. And then put through a second machine or spotting machine to put the spot on?

A. That is right.

Q. 55. Since March, 1932, you have adopted the method of doing both operations in one machine?

A. That is correct.

Q. 56. When you spoke a few moments ago of a speed of 200 a minute, that means both operations, putting the corks in the shell and the spots on the corks, is that right?

A. That is right.

Q. 57. Did you have anything to do with the 4,620 adhesive?

A. I think I did, yes.

Q. 58. Did you make the first experiments on that?

A. Yes, I did.

Q. 59. What did you get the 4620 for originally?

A. In May, 1932, the salesman for the duPont Cellophane Company—and they were selling us cellophane at the time—called to see me during the ordinary course of business. During our conversation I asked him whether or not he had an adhesive that would have no odor that could be used in connection with what we term "Filmaseal." He told me to write to Parlin, New Jersey, to a certain gentleman there, and ask him about 4620, which they call a thermoplastic cement, which could be used in such a way that no odor would develop.

I received samples a short time after that and tried it out for use in "Filmaseal" and found that I couldn't do it, that it was not practical.

Q. 60. I show you a letter marked Defendant's Exhibit WWW, dated May 12, 1932, from duPont Company; is that [fol. 394] the letter you got from them?

A. That is right.

Q. 61. After you got the sample mentioned in that letter what did you do about using that material to adhere center spots to cork discs?

A. We did not start to use it in connection with crowns until late in 1932 when, due to the legalization of 3.2 beer at that time, the beer business began to look a little more interesting to us, so we bent our efforts in the laboratory

to see whether or not this material could be used as a substitute for gutta percha, because also of the fact that gutta percha gave universal difficulties if the gutta percha crowns laid around at any place for a great length of time.

Q. 62. About when did you make your first center spot caps using 4620 as an adhesive?

A. Either January or February of 1932; we have a laboratory record of it.

Q. 63. You mean 1933?

A. 1933, pardon me.

Q. 64. What does that record show?

A. The record shows that we made, that we coated onto a piece of aluminum one inch wide this 4620, using a brush for the coating process, and then adhered it, cutting the spot out in the laboratory with a suitable die that we had available for it.

Q. 65. By hand?

A. With a hand die, yes, and centering the spot onto the crown, or to the few crowns we had in there, and sticking them on by means of heat first and pressure afterwards.

Q. 66. When did you first try that out on a machine in an experimental way?

A. Probably February or March of that year.

Q. 67. What was the result of your experiments with the machine? Did you find it satisfactory or unsatisfactory?

A. We found that we could take the 4620 on the aluminum [fol. 395] and substituting it for the use of gutta percha on the aluminum and put it right into our machines as they were then situated and keep right on running them, turning out crowns.

Q. 68. Did you do anything about having this tested for pasteurization qualities?

A. Oh, yes, we went through a number of tests; of course, this was such a radical departure at that time from what was then on the market, that we had to make thorough tests of every phase of it that we knew about.

Q. 69. Who did you send the bottles with the caps secured with center spots using 4620 adhesive, who did you send them to to be pasteurized?

A. We sent them to the Schwartz laboratories.

Q. 70. Where is that?

A. In New York City.

Q. 71. Have you got a record of the date of that?

A. Yes; we have a report from the laboratories indicating it.

Q. 72. I show you a paper from the Schwartz Laboratories, and ask you if that refreshes your recollection?

A. That is the test.

Mr. Warland: I offer that report in evidence if the Court pleases.

(Marked Defendant's Exhibit LLLL in evidence.)

Q. 73. Now do you know about the commercial production of center spot caps using the 4620 as an adhesive?

A. Yes, I produced the first ones that went through, with the aid of a mechanic outside.

Q. 74. I show you Defendant's Exhibit BBBB, an order [fol. 396] from the Goetz Brewing Company. Can you tell me whether that 4620 is the adhesive and if so what means have you of telling whether it is 4,620 or not?

A. Well, it is my writing on this blue copy of the order.

Q. 75. Your writing was put right there?

A. Exactly. The packing slips were marked by somebody in the factory which indicates—they are marked "S. F. Eisen," indicating——

Q. 76. Is that your writing?

A. No, this is by a man in the factory, indicating that these particular cartons so identified are special foil made up by myself and consisting of 4620 coated on to aluminum foil.

Q. 77. Do you know of your own knowledge that 4,620 was shipped in accordance with that factory order?

A. Yes.

Q. 78. I show you another factory order Defendant's Exhibit AAAA. What can you tell me about that?

A. That case consisted of a hundred gross of crowns, 90 of which consisted of center spots of aluminum adhered to the cork by means of 4620 and 10 gross of our regular production. There is a notation on here by myself, made at the time, June 22, 1933, that one of the mechanics and myself ran this through. I was personally present at the machine all during the time that these were run.

Q. 79. And do you know whether the goods described in that factory order were actually shipped?

A. Yes, this is the shipping memorandum, this pink slip (indicating).

Q. 80. And you know that these goods were shipped to the Peter Hand Brewing Company?

A. They were shipped to the Peter Hand Brewing Company.

[fol. 397] Q. 81. On the date mentioned therein?

A. Right.

Q. 82. You said a few minutes ago that that letter from the duPont Company refreshed your recollection as to the first sample that you got from them. Do you remember when you first purchased any from them?

A. I think it was early in 1933.

Q. 83. I show you a bill from the duPont Company to Ferdinand Gutmann & Company dated 4/4/33, and I ask you if that is the date when you first got the first gallon of that material?

A. Yes, that is the date.

Q. 84. Is this the can that that material came in (handing to witness)?

A. Yes, sir, it is.

Mr. Warland: I offer this bill from the duPont Company in evidence.

(Marked Defendant's Exhibit MMMM in evidence.)

Mr. Warland: I also offer in evidence this original can.

(Marked Defendant's Exhibit NNNN in evidence.)

Q. 85. You spoke of a test that you had made for this 4620 and referred to a pasteurization test. Did you make any other test on crowns secured with this adhesive?

A. Yes, we compared the aging of the 4620 crowns with gutta percha crowns.

Q. 86. How did that comparison show up?

A. In all cases the 4620 crowns stood up much better, meaning thereby that the adhesion of the spot to the crown was much better than the adhesion of the gutta percha.

Q. 87. I have shown you a report from the Schwartz [fol. 398] Laboratories on pasteurization. Did you make any pasteurization test yourself before sending that to Schwartz?

A. Yes.

Q. 88. Do you know how long before that was?

A. I should say about March of 1933.

Q. 89. Did you run any tumbling test?

A. Yes.

Q. 90. And how did those show up?

A. We tumbled the 4620 crowns in a rotary tumbler and the paint on the crowns was entirely obliterated while the spots still adhered themselves to the cork indicating that the crowns had been tumbled terrifically, at least very much more than they would ever get in production.

Q. 91. I call your attention to the patent marking on this Defendant's Exhibit NNNN, can of the duPont substance; did you notice that at the time you purchased the can?

A. Yes, I did. I might add here that some five gallon cans purchased directly afterwards still had the marking.

Cross-examination.

By Mr. Scull:

X Q. 92. I think you told us that you had taken up the matter of cost of production of aluminum spots with gutta percha in 1928.

A. That is right.

X Q. 93. Now, after you got down to a manufacturing basis, we will say at the end of 1928, what was your cost of production?

A. I can't say offhand.

X Q. 94. Have you got the figures here?

A. I think so.

X Q. 95. Will you look them up and let me know?

A. It indicates a cost of seven and a quarter cents per gross for the spotting only.

[fol. 399] X Q. 96. Yes, for the spotting only is what?

A. That the cost is seven and a quarter cents per gross.

X Q. 97. Seven and a quarter cents per gross for the spotting only and that was aluminum foil with gutta percha?

A. That is right.

X Q. 98. That is when the spotting was being done with the Johnson machine?

A. We had no other.

X Q. 99. The answer is "Yes" then.

A. Yes.

JESSE GUTMANN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Gutmann?

A. I am employed by Ferdinand Gutmann & Company.

Q. 2. In what capacity?

A. Vice-president and sales manager.

Q. 3. How long have you been with that company?

A. Since 1914.

Q. 4. What are your duties with the firm, principally?

A. Selling our products and helping our men to sell them, and also endeavoring to create new ones and indicating the need for improvements in old ones.

Q. 5. When did the defendant Ferdinand Gutmann & Company first make center spots of any kind that you know of?

A. In December, 1924.

Q. 6. Are those the center spot crowns that have been [fol. 400] testified to as having been made and sold to the Inecto Company?

A. Yes.

Q. 7. Did you have anything to do with the manufacture of them?

A. With the sale of them; I sold them.

Q. 8. But you had nothing to do with the manufacturing details?

A. Not in the manufacture of them, not as to the details. I saw them going through, but I didn't have anything to do with the production.

Q. 9. Did you negotiate the sales to Inecto Company?

A. I did.

Q. 10. How about the sales to the Goetz Brewing Company? Did you have anything to do with obtaining the orders for those or not?

A. Not at that time; my father did.

Q. 11. When Gutmann began the manufacture of center spot crowns in November or December, 1924, had you, prior to that time, seen center spot crowns?

A. Yes.

Q. 12. Did you know of them on the market?

A. Yes, indeed.

Q. 13. Did you see any of those center spot crowns made by other manufacturers?

A. I did.

Q. 14. Did you see any made by the Kalak Company?

A. Not made by them, used by them.

Q. 15. When was that?

A. That was in 1919, I fix the date; at about that time we sold the unspotted natural cork crowns. They were located right in our building in Bush Terminal below us, not immediately below, but several floors below, and I saw the crowns which they were using there, which were tinfoil center spot crowns on natural cork, made by the Crown Cork & Seal Company of Baltimore.

Q. 16. Do you know how the center spot was fastened [fol. 401] on this crown that you saw in 1919?

A. Yes, by gutta percha.

Q. 17. How do you know it was gutta percha?

—. Well, I peeled off the spot and examined them, and looking backward I know that it is the same material that we used subsequently to make the Inecto crowns.

Q. 18. Do you know anything about the use of the method shown by the Benno Cohn patent, when that was first adopted by the defendant?

A. Yes.

Q. 19. When was that?

A. Early in 1932.

Q. 20. Do you know about this use of the 4620 as an adhesive by the defendant?

A. I do.

Q. 21. When was that first adopted?

A. Well, it was commercially adopted I would say somewhere around June of 1933, but we ran crowns prior to that time experimentally.

Q. 22. How long prior to that time?

A. It would be my guess that we ran some hand samples the end of 1932.

Q. 23. Did you see the first experimental run on a machine with 4620?

A. Yes.

Q. 24. When was that?

A. Very early in 1933.

Q. 25. Now do you recall any representative of the plaintiff company calling at the defendant's factory?

A. Yes, I was present when Mr. Fusting and Mr. Nagle the vice-president and treasurer called.

Q. 26. When was that?

A. They called several times, I think the first visit was some time in April of 1933.

Q. 27. Were you present at that interview had in August of 1933?

A. When they called at our plant to see the machine?

Q. 28. Yes.

A. No, I was not in the city at that time.

[fol. 402] Q. 29. Did you or anybody connected with the Gutmann Company subsequently have any discussion with the plaintiff's company?

A. Yes, we had several interviews. They called at our plant several times, these two same gentlemen, and by invitation my father and I called at the New York office of the plaintiff and that I would say was early in 1934. We were discussing the possibility of avoiding litigation but we could not agree.

Q. 30. At any of these interviews had with the officers of the plaintiff, at which you were present, was Mr. McManus of the plaintiff company there?

A. At the interview in their New York office he was there with Mr. Nagle and Mr. Fusting.

Q. 31. When was that would you say?

A. My guess would be around February of 1934.

Q. 32. Was anything said about the use of the method covered by the Benno Cohn patent?

A. They had seen—Mr. McManus had not, but Mr. Fusting had seen us practice the method and I believe—I am not absolutely certain about this—but Mr. McManus made some statement that he had done that a long time ago.

Q. 33. The defendant company does not confine itself exclusively to center spot caps, does it?

A. No, indeed.

Q. 34. What other product do they manufacture?

A. Unspotted crowns, pharmaceutical and wide mouth screw caps, lithographed drawn tin boxes and we make some specialties, milk and water bottle caps and numerous other closure specialties.

Q. 35. What would you say is the proportion of the

business devoted to center spot crowns as compared with the total business?

A. Roughly about one-third.

[fol. 403] Q. 36. And of the center spots sold, what proportion are metal foil and what proportion are glazed paper?

A. It varies from year to year, but about five to ten per cent paper and the balance metal foil.

Mr. Warland: That is all.

Cross-examination.

By Mr. Scull:

X Q. 37. Prior to the Inecto incident of the latter part of 1924 and the first part of 1925 had you been selling them crown caps that they had been using?

A. Yes, sir.

X Q. 38. And what were they?

A. Natural cork. They were natural cork with a paper collet backing the natural cork.

X Q. 39. And they have continued to use that paper collet as I understand it down to the present day?

A. That is correct.

X Q. 40. That natural cork was coated with paraffin?

A. I would not call it coated, I would call it paraffined. It was not coated on, it underwent the usual process of a paraffin bath. A heated centrifugal machine that is used in the industry for that purpose.

X Q. 41. There was no more than there was on the ordinary cork disc or unspotted crown?

A. A trifle heavier coating than normally, but there wasn't a wad on there.

X Q. 42. Well, how did it come about that you began trying to put spots on those crowns?

A. When we first started——

X Q. 43. I just want you to tell me what occurred between you personally and somebody connected with Inecto.

A. Dr. Evans who had not been with the Inecto Company when I first started to sell them the crowns——

[fol. 404] X Q. 44. When was that?

A. Roughly about 1921 or 1922, Dr. Evans was a technical man and they did not have a real technical man with them prior to that time. While we had made a very big

improvement in their bottling, by using the natural cork crown as compared with the tapered cork that they used prior, still Dr. Evans, when he joined the firm, was not satisfied and thought that the thing could be improved. In other words peroxide decomposes quite readily when it contacts with a foreign material and the cork dust set up this action and resulted in decomposition and he wanted to keep the peroxide stable as long as possible. We discussed various ways of accomplishing it. It was just one of those bottling problems put up to us from time to time and I took it over to the plant and we discussed it there together and I having recalled the use of center spot crowns by the Kalak Company downstairs, I went down there again and I got some samples of those gutta percha adhered tinfoil discs and also some of the White Rock cut-in crowns—these were the regular large size crowns whereas the Inecto was a smaller size and I submitted them to Dr. Evans and he thought that he would prefer the cut-in type and so that is what we first made for them. Does that answer your question or do you want me to continue?

X Q. 45. How did it come about that somebody in your plant first tried to stick the spot on with paraffin?

A. Well, the original thought was to use something entirely inert, and paraffin is inert and so is pure block tinfoil with respect to peroxide. So we attempted to use paraffin to bind the spot to the cork originally, but that was not practical, at least, we didn't find it so. So we then tried [fol. 405] the cut-in or Millis or White Rock type.

X Q. 46. Was that Kalak use the only spot crowns you knew of in 1924?

A. No, no, the White Rock; I knew of considerable use prior to that, and I knew of the Kalak use back in 1919.

X Q. 47. As a matter of fact, during those years there had been a considerable number of spot crowns used, had there not, not only of the White Rock, but of the cemented type?

A. Certainly; they must have been. The only point is we were chiefly in contact with the brewers, and not with the mineral water people who used it. At that time the center spot was chiefly used for mineral waters to prevent the alkaline reaction with the cork.

FERDINAND GUTMANN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Mr. Warland: If the Court please, before examining this witness I would like to offer in evidence the original interrogatories to the plaintiff offered by the defendant, and plaintiff's answers to same.

The Court: All right.

(Deemed marked Defendant's Exhibit OOOO.)

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Gutmann?

A. Manufacturer of bottle caps, corks and bottle supplies.

[fol. 406] Q. 2. How long have you been in that business?

A. For myself?

Q. 3. Yourself.

A. Since 1898.

Q. 4. What name did you do business under in 1898?

A. Ferdinand Gutmann, at 64 Broad Street, New York.

The Court: Are you an officer of the defendant?

The Witness: I am president.

Q. 5. Is the present-day defendant, Ferdinand Gutmann & Company, is that a successor of your business that you carried on?

A. It is; I incorporated the company in 1902; the company was incorporated under the laws of the State of New York.

Q. 6. And have you been president of the company——

A. Ever since.

Q. 7. Ever since that time?

A. I have.

Q. 8. What articles does Ferdinand Gutmann Company make, running back say since about 1920, what have you made principally?

A. Up to 1920, manufactured crowns and imported corks and cork material.

Q. 9. I understand that you make metal boxes and screw caps and things of that kind. How long have you been making those?

A. Since 1924.

Q. 10. What proportion of your business would you say was devoted to center spots as compared with the entire business done by the defendant?

A. During what year?

Q. 11. Well, say from 1924 up to date.

A. It was never larger in 1924, 1925 and 1926 than about 20 per cent of the business.

[fol. 407] Q. 12. You mean the center spots amounted to about 20 per cent. of the whole business?

A. Up to 1926, yes.

Q. 13. From 1926 on how does it compare?

A. From 1928 to 1933, about 40 per cent.

Q. 14. Now, of these center spots which are in litigation here, which type do you sell the most of, the metal-foil or paper spots?

A. Mostly metal-foil.

Q. 15. About what percentage of the center spots that you sell are metal-foil spots, would you say?

A. Between 90 and 95 per cent.

Q. 16. I show you a copy of a letter dated October 10, 1930, written by Ferdinand Gutmann & Company to the Crown Cork & Seal Company. Did you send that letter?

A. I did.

Q. 17. Look at the letter from the Crown Cork & Seal Company and tell me if that is the reply that you got to that letter?

A. It is.

Q. 18. Why did you send that letter which I showed you a copy of, dated October 10th, to the Crown Cork & Seal Company?

A. During my trip in the latter part of September and early October, 1930, it came to my notice that several customers and members of the Brewers Association of the Middle West had been advised——

Mr. Scull: I object to that, pure hearsay.

The Court: Yes, that is pure hearsay.

The Court: He cannot tell us what they told him. He might say that because of some information he received, he wrote the letter.

Q. 19. Just why did you write that letter, had there been any representations——

[fol. 408] Mr. Scull: I object.

The Court: I have already ruled and you should conform to it. He cannot tell us what anybody told him. If he wants to say that he wrote it because of information received, all right, but not what he received.

Q. 22. Did you get information from anybody that caused you to write that letter.

A. I did.

Mr. Warland: I offer the letter dated October 13th, from the plaintiff to the defendant and the letter dated October 10th from the defendant to the plaintiff, and the defendant's reply of October 14th, in evidence as one exhibit.

(Marked Defendant's Exhibit PPPP in evidence.)

Q. 21. Now, at the time you got this letter or at any time after that or before that, prior to the notification of the alleged infringement, did you get any notice from the Crown Cork & Seal Company to the effect that you were infringing any of the patents?

A. I did not.

Q. 22. What was the first time that you were accused of infringing any patents of the Crown Cork & Seal Company?

A. 1934.

Q. 23. Were you present at conferences between some of the plaintiff's officers and the defendant's officers in the years 1933 or 1934?

A. I was.

Q. 24. Were you at the defendant's factory in 1933 when Mr. Fusting and Mr. Darby called?

A. I was.

Q. 25. Did you hear Mr. Darby say anything about the [fol. 409] method shown and described in the Cohn patent which you were carrying out at that time?

A. I escorted Mr. Fusting and Mr. Darby through the factory and showed them, with the assistance of Mr. Benno Cohn and Mr. Rasmussen, the operation of our method. The method which I had explained to Mr. Fusting and Mr. Nagle at their visit several months prior to that and they asked us to sign a license and I explained that we were perfectly willing to show them the machine and our reason for not wishing to sign the license, that we had our own method and we were not involved in this question at all.

I heard Mr. Darby ask Mr. Fusting, after they had examined the machine, and I believe Mr. Wentworth was in the factory with us, standing at the machine and explaining it to Mr. Darby; I heard Mr. Darby ask Mr. Fusting whether he had ever seen that method applied before or anything like it and Mr. Fusting, in my hearing, said that he had not.

Q. 26. Did you hear anything said about any offer to buy the Benno Cohn patent from you at that time?

A. Yes; on the way from the factory into the office I heard Mr. Darby ask whether the machine, or the idea of the patent was for sale and I know that Mr. Cohn said we had not given any thought to that subject and Mr. Darby asked whether he would take $5,000 and Mr. Cohn said no. Mr. Darby asked whether he would take $10,000 and Mr. Cohn said no. Then Mr. Darby said, "Well, if the gentleman is asking a million dollars we are not a bit interested."

Q. 27. At the time that they came in, in August of 1933, do you know whether a machine of the Benno Cohn method [fol. 410] was being run on a commercial order?

A. It was.

Q. 28. And do you know the type of center spotting material that was being used on that machine?

A. I know it was a new type.

Q. 29. Do you know anything about the adoption of this 4620 as an adhesive?

A. I heard of it but I am not sufficiently technical to differentiate.

Q. 30. Well, testimony has been given here by some of the officers and employees of your company as to sales of center spot crowns to the Inecto Company and to the Goetz Brewing Company. Do you know anything about those sales?

A. I do.

Q. 31. And do you know the sales were made at the dates set forth in the invoices?

A. Approximately the dates that were testified to.

Q. 32. As I understand it, you had nothing to do with the actual production or detail method of production?

A. No.

Q. 33. That is all up to whom?

A. To my associate, the treasurer of the company, who takes charge, Mr. Cohn, and Mr. Eisen who takes care of the chemical laboratory and research work, and Mr. Rasmussen.

Q. 34. Didn't you have anything to do with negotiating the sales of center spot crowns to the Goetz Brewing Company?

A. I did.

Q. 35. Did you know of the use of center spot crowns made by other manufacturers prior to 1924 when the defendant first made the Inecto caps?

A. I knew of several in the mineral water line that had been using center spot crowns in this country as well as in Europe, yes, sir.

Q. 36. After you began to sell the center spot crowns to [fol. 411] Inecto in 1924 and 1925, and after 1928, when you began to sell center spot crowns in large quantities to the Goetz Brewing Company, did you know of the manufacture and sale by other manufacturers besides the plaintiff and the defendant in this suit?

A. I was shown quite a number of competitive crowns.

Q. 37. Made by whom?

A. Made by Bamberger & Kraus, Hutchison Sons, Williamsburg Stopper Company, Crown Cork & Seal Company, Mundette & Son, I believe the Western Stopper Company of San Francisco, too.

The Witness: May I ask one question of the Court? At the time I wrote this letter I had taken a conditional order at St. Joseph, Missouri, from the Goetz Brewing Company provided I could show that we were not infringing on anybody's rights. And I asked, I said that I would very promptly write the Crown Cork & Seal Company, and on receipt of that reply to my letter I sent the letter to the Goetz Brewing Company.

Cross-examination.

By Mr. Scull:

X Q. 38. Who was the man you say you sent the copy of this letter to?

A. I sent a copy of that letter to two people.

X Q. 39. Who are they?

A. One was Mr. Goetz of the Goetz Brewing Company?

X Q. 40. To whom you had been supplying spot crowns since 1928?

A. I did.

X Q. 41. Yes.

A. And the other was to the so-called research and tech-
[fol. 412] nical adviser of many of the breweries in the Middle West, Mr. E. A. Siebel of the Siebel Laboratories.

X Q. 42. And they accepted this letter signed by Mr. Vincent, dated October 13, 1930, as satisfactory?

A. They did.

X Q. 43. When you made this first sale of spot crowns to Goetz in 1928, my understanding of the previous testimony is you had been having some trouble with your natural cork crowns with him, is that right?

A. Yes.

X Q. 47. Such trouble was not an unusual thing in the brewery business, was it, at that time, yes or no?

A. It was unusual.

X Q. 48. It was unusual?

A. Yes.

X Q. 49. As soon as this trouble developed in Goetz, who was it suggested the spot, you or somebody else?

A. I was shown in the Goetz Brewing Company crowns that Anheuser-Busch had from natural cork turned into spot crowns.

X Q. 50. And Goetz invited you to do the same thing?

A. I said that I could do the same thing, yes, sir.

X Q. 51. Goetz wanted you to do the same thing?

A. He did.

X Q. 52. And you took this Anheuser-Busch crown, brought it back to Brooklyn, I suppose, and told them to go ahead and make a crown like that?

A. We started our experiments at that time, but I may say I had been asked two years before that to make them.

X Q. 53. Two years before?

A. Yes, 1926.

X Q. 54. And you did not do it?

A. I was not prepared to furnish them in quantity and neither would I make a new article without giving it sufficient experimental work and knowing that I could keep a supply
[fol. 413] such as this particular customer, Anheuser-Busch, wanted.

X Q. 55. It was Anheuser-Busch?

A. Yes.

X Q. 56. They have a very large output?

A. Not during that time as much as pre-prohibition. You

are talking of 1926. That was in the prohibition period where beer was not the same thing as before 1920.

X Q. 57. Weren't they making near-beer?

A. Yes, but not in the proportion that was anywhere near as important.

X Q. 58. How many thousand gross do you suppose Anheuser-Busch was using of crown caps in 1926?

A. I can tell you better about what they were using before, because my factory furnished the natural cork that Anheuser-Busch was using.

X Q. 59. Up to what year?

A. Between 1904 and 1906 they were experimenting with crowns and we were then still shipping from Spain and Germany our natural cork, one and one-half inch and one and one-quarter inch.

X Q. 60. Those are straight cork——

A. For the inside of the bottle.

X Q. 61. But that does not tell me what I want to know. What is your idea of the number of crowns that Anheuser-Busch was using in 1926, give us a rough idea.

A. Hardly 20 per cent of what they were using during pre-prohibition times.

X Q. 62. What were they using, was it 100,000 gross a year, would you say?

A. They used in pre-prohibition, two million gross a year.

X Q. 63. And in 1926?

A. I don't think they used more than a half a million.

[fol. 414] X Q. 64. More than one-half a million gross?

A. I don't know.

X Q. 65. What is the greatest number of center spot crowns that you have ever made; according to this list which has been put in evidence here as Defendant's Exhibit XXX, the highest number of center spots which you have made was in 1933 when there was 847,000 gross.

A. That is right.

X Q. 66. But up to that time you were doing a center spot business that did not exceed 393,000 gross a year and that was in 1931?

A. That is correct.

X Q. 67. And you thought you were doing a rather respectable business in 1931, didn't you?

A. No, we did not.

X Q. 68. You would not have been interested in having another half million gross added to it?

A. Oh, yes, that would have been very nice, had we been able to.

X Q. 69. You had the ability to make them?

A. When?

X Q. 70. At any time after 1925.

A. No, I refused to go in the center spot business until we ourselves had sufficient experience with beers. Beer is a different article than mineral water, you know.

X Q. 71. How did you get that sufficient information and experience with beer?

A. We experimented and had others experimenting for us.

X Q. 72. In 1926?

A. 1927 and 1928, when it became apparent that some of the big brewers were interested in using center spot crowns.

X Q. 73. In 1928 you got this order from Goetz and you went out and got a machine from Johnson to make it?

A. That is right.

[fol. 415] X Q. 74. And you went to him because he was a manufacturer of this kind of machinery?

A. Johnson had been selling me machines since 1914.

X Q. 75. Did you inquire of him whether he had a center spot machine?

A. No, I left that to the gentleman who had charge of that.

(Recess until Wednesday, November 13th, 1935, at 10:30 a. m.)

Brooklyn, N. Y., November 13, 1935.

Met pursuant to recess at 10:30 a. m.; present as before.

STIPULATION AS TO CERTAIN EVIDENCE

It is Stipulated by and between counsel for the respective parties hereto that the bill to Inecto by Ferdinand Gutmann & Company, dated May 13, 1925, reading as follows: "For experimental work for insertion of tin centers in B caps, with gutta percha, slotting cork and so forth," is a bill duly rendered and further that the attached memorandum dated May 9, 1925, is a memorandum from Mr. Ferdinand Gutmann to Mr. L. A. Gutmann, as of said date.

Mr. Darby: I now offer the bill in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 39 in evidence.)

Mr. Darby: I also offer the memorandum in evidence.

(Marked Plaintiff's Exhibit 40 in evidence.)

[fol. 416] It is further Stipulated by and between counsel for the respective parties hereto that if a representative of the duPont Company were called he would testify as follows:

"Q. Did duPont offer 4620 cement to other bottle cap makers besides Gutmann?

"A. Yes, we also offered this cement to the Crown Cork & Seal Company.

"Q. If so, when?

"A. This was done orally by a salesman contacting Crown Cork & Seal Company in either December, 1931, or January, 1932.

"Q. When did duPont first sell it to the Crown Cork & Seal Company?

"A. One quart of 4620 was sent to the Crown Cork & Seal Company in January of 1932. In the time available I have not been able to ascertain whether this was sold or given. By way of clarifying the picture we might also state that this was released by our research department to our sales department on February 18, 1932, and the sales department made certain preliminary contacts in this connection including the contact with Gutmann which led to Gutmann's letter of May 6, 1932, to our Mr. Parker. Both before and after the February 18th date we had been in contact with Crown Cork & Seal Company as an outgrowth of our having previously sold them other products such as our X-1-29. The sales department released this cement for general sale on April 30th, 1932. As you will see, this preceded our first contact with Gutmann. Our records also show that we sent Gutmann one-half a pint of 4620 cement on May 12, 1932, without charge."

[fol. 417] SAMUEL COHN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct-examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Cohn?

A. I am treasurer of Ferdinand Gutmann & Company.

Q. 2. When was that company organized?

A. 1902.

Q. 3. Have you been treasurer ever since then?

A. Since its organization.

Q. 4. What kind of business does the Ferdinand Gutmann Company do?

A. We were in the cork business and general bottlers' and brewers' supply, and later we went into the crown business.

Q. 5. Do you make any other goods besides crown caps?

A. We do now, yes, we make screw caps, we make some shallow boxes, tin boxes, and other special small stampings.

Q. 6. What would you say was the proportion of the center spot crown cap business to the bulk of the business of Ferdinand Gutmann & Company?

A. The center spot crown in relation to our crown business or——

Q. 7. In relation to your whole business?

A. Oh, roughly, I should say it is one-third at the present time, during the past few years.

Q. 8. Of these center spot crowns that you sell, which do you sell most of, metal center spot or glazed paper center spot?

A. The metal center spot.

Q. 9. About what proportion is the metal spots to the entire output of crowns and center spots?

[fol. 418] A. The entire output of crowns or the entire output of center spots?

Q. 10. The entire output of center spots?

A. I should say between 90 and 95 per cent.

Q. 11. Are metal spots?

A. Are metal spots.

Q. 12. Do you know how long the defendant Gutmann has manufactured crown caps with center spots?

A. Yes.

Q. 13. When did they first begin?

A. Well, it was late, the end of 1924 or early 1925.

Q. 14. Were those the caps made for the Inecto Company about which testimony has been given here?

A. They were, yes, sir.

Q. 15. Did you have anything to do with the actual manufacture, or was it simply made to your knowledge?

A. They were made with my knowledge and I approved of the expenditures involved.

Q. 16. Do you know about these sales that have been testified to that were made to the Goëtz Brewery?

A. Yes, I do; that, however, was later.

Q. 17. That was sales of 1928?

A. 1928 onward.

Q. 18. When did you first learn about center spots for crowns?

A. Oh, I should say the first I paid any attention to, it was back around 1914.

Q. 19. When did you see a cap with a metal foil spot secured by gutta percha?

A. Why, in 1919, the Kalak Water Company.

Q. 20. Do you recall any officers of the plaintiff company visiting your plant during the years 1933, 1934?

A. Yes, Mr. Fusting and Mr. Nagel called on us in 1933.

Q. 21. About what month?

A. Why, the first time was the spring, I think it was.

Q. 22. Did they call on you in August, 1933?

A. Well, I remember seeing Mr. Fusting and Mr. Darby [fol. 419] at that time, but I only came into the office after the business interview that they had had there had been completed.

Q. 23. Prior to the first threats of infringement by the plaintiff in this suit, which was sometime in 1933, was it not? When did you first hear of any threats of infringement by Crown Cork & Seal Company?

A. Early in 1933.

Q. 24. Prior to that time had the plaintiff ever sued you, threatened to sue you, for invasion of any of its patent rights, prior to 1933?

A. With relation to the——

Q. 25. Center spot crowns?

A. Center spot crowns, no, they did not.

Q. 26. Do you know that Gutmann is making and selling to the Inecto Company today large quantities of center spots of what we call the Millis type?

A. Yes.

Mr. Warland: That is all.

Cross-examination.

By Mr. Scull:

X Q. 27. When was it that the Gutmann Company began the manufacture of crown caps?

A. We began manufacturing—crown caps entirely you mean?

X Q. 28. Yes.

A. In 1914. We had been selling them for many years before that.

X Q. 29. I suppose that you kept track of any development in crown caps that appeared on the market after 1914?

A. Well, in a general way.

X Q. 30. You were manufacturing crown caps in rather a large way from 1914 on, were you not?

A. Well, yes, we were.

X Q. 31. When you saw this gutta percha held spot in 1919, to the Kalak Company, you were interested enough [fol. 420] to pull it apart, I suppose, and see how the thing was made?

A. Yes.

X Q. 32. And did you give any considerations to your going into that particular business at that time?

A. Not at that time.

X Q. 33. Why not?

A. We were doing most of our business, practically all of it with the brewers and these were tin-foil spot crowns, being used on mineral water.

X Q. 34. At the time about how many plain crown caps were you selling in 1919, annually?

A. I have not looked it up, but roughly I should say perhaps about two million gross, but they were substantially all natural cork crowns in which we were essentially interested.

X Q. 35. And was this Kalak sample that you saw in 1919 also natural cork?

A. Yes, but with a tin-foil spot.

X Q. 36. And how do you know that was held on with gutta percha?

A. I beg your pardon?

X Q. 37. I say how do you know that was held on with gutta percha?

A. I examined it and I found some of the crowns that I had taken at that time, when we moved here last December.

X Q. 38. Did you at that time in 1919 know that it was held on with gutta percha?

A. I would not be willing to say that now. It is quite evident they were held on with some rubber compound, but I cannot say now that at that time I was convinced of it being held on with gutta percha.

X Q. 39. Now you took on this Inecto business in 1920, when?

A. In the end of 1924 or 1925.

X Q. 40. Hadn't you been making plain unspotted crowns for Inecto prior to 1924?

A. Without spots?

X Q. 41. Yes.

A. I believe we did but I have never looked that up.

[fol. 421] X Q. 42. Several months before the end of the year at any rate?

A. I haven't looked up the records on that and I cannot say definitely.

X Q. 43. Do you remember what the number of caps were that Inecto agreed to take annually?

A. When?

X Q. 44. When you took their order.

A. I don't recall the contract.

X Q. 45. You thought it was a sufficient amount to interest you to take on?

A. Yes.

X Q. 46. And to develop whatever was necessary to supply their wants?

A. We did.

X Q. 47. And that was a special size crown?

A. That was a special size crown.

X Q. 48. Did you make that size crown for anybody else?

A. At that time?

X Q. 49. Yes.

A. No.

X Q. 50. So that you had to make special dies for making the tin shells, didn't you?

A. Correct.

X Q. 51. And you also had to make special cork discs to go in it?

A. That is true.

X Q. 52. And the size of the order, of the respective order from Inecto was enough, in 1924, to induce you to go to all that expense?

A. Quite evidently. My recollection is that Inecto was willing to pay for some of the preparatory cost, but I haven't looked up the records on it.

X Q. 53. You did bill them subsequently for their experimental work after there had been some inter-office communication?

A. That is my recollection.

X Q. 54. But that was not part of the original agreement with Inecto?

A. I don't think it was.

Mr. Scull: That is all.

[fol. 422] Redirect examination.

By Mr. Warland:

R. D. Q. 55. When you made these caps for Inecto you had to make them of a smaller size than was on the market at that time?

A. Yes.

R. D. Q. 56. This cap I show you with a B on the back of it, is that the size you had to make for the Inecto?

A. That is the size, yes.

Mr. Warland: I will offer that in evidence.

(Marked Defendant's Exhibit QQQQ in evidence.)

R. D. Q. 57. Now, of course, the making of the crowns of a smaller size involved some expense?

A. Yes.

R. D. Q. 58. But the price that you agreed with the Inecto Company to make these caps for was sufficient to warrant that additional expense, was it not?

A. Yes.

R. D. Q. 59. In the case of the caps of a standard size

which were being used by brewers you had to compete with other manufacturers, is that right?

A. Yes, indeed.

Recross-examination.

By Mr. Scull:

R. X Q. 60. In addition to making new punches and what-not to make that smaller crown you also had to make some changes in your lithographing plant, did you not? You had to make some changes in the way you lithographed the caps on the sheet of tin?

A. No, I do not think so.

R. X Q. 61. Didn't you have to make some arrangement, some changes by which you slit up that sheet after it was lithographed?

A. Oh, yes, you mean—well, that would make no change [fol. 423] in the lithograph, a change in the handling of the sheets afterwards.

R. X Q. 62. Yes.

A. But we were manufacturing regular crowns in that way too at that time, by slitting the sheets.

R. X Q. 63. But you had to change all the spacing of the slitting knives, of course, because there was a smaller piece to be slit up, is that right?

A. Yes, that would be true.

R. X Q. 64. And you also had to change your assembling machines, did you not, put in smaller racks to advance——

A. That is where the main initial expense came in, changing the assembling machines for taking care of that smaller cap.

R. X Q. 65. But you also had to make new dies to blank out the original tin cap, did you not?

A. Yes, very true, but the main expense was in the assembling machine.

Redirect examination.

By Mr. Warland:

R. D. Q. 66. Just a moment; I hand you a memorandum and ask you if that refreshes your recollection in any way

as to making any changes made necessary for making caps of the size called for by Inecto?

A. Yes, I find that we made the crowns, the smaller crowns without the center spot before 1924, and part of our expense was involved at that time.

R. D. Q. 67. At what time?

A. Back in 1923, so far as I can see, it was back in 1923, when we made dies for the small size crowns first and then changed, so far as the center spot, that came in late in 1924 or 1925. It was 1925.

R. D. Q. 68. I understand in 1923 you sold these small size [fol. 424] caps to Inecto, and had to have small size dies for them without a center spot?

A. Without a center spot.

R. D. Q. 69. And in 1924 you had to make a change having the center spots?

A. That is right.

R. D. Q. 70. Now, you were asked about the cost of lithographing. Do you do lithographing yourself, or is that done for you by somebody else?

A. We have it done by somebody else.

R. D. Q. 71. And that applies to every new order, doesn't it?

A. It does.

R. D. Q. 72. For instance, if any new brewer comes in and wants a special kind of a cap with a special decoration, you have to have that special decoration lithographed and pay extra for it to your lithographer, is that correct?

A. Yes.

JOHN J. DARBY, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. You are one of the counsel of record in this case, are you?

A. That is correct.

Q. 2. Did you prepare the answer to the bill of particulars given by the plaintiff as to the dates of conception and reduction to practice in each one of the patents in suit here?

A. Those dates were furnished by Mr. Fusting of the Crown Cork & Seal Company after reviewing the records of the Crown Cork & Seal Company such as we had available and such records were in my office.

[fol. 425] Q. 3. I want to ask you some questions in reference to the patent to Warth No. 1,899,783.

A. May I have a copy of the patent? 783, do you say?

Q. 4. Yes.

A. I have it.

Q. 5. The serial number of the original application in that patent is No. 360,895. Now, during the prosecution of that application certain claims were copied, for interference purposes, from the patent to Lange, were they not?

A. It is my recollection that they were.

Q. 6. And did you have anything to do with preparing the preliminary statement of Mr. Warth, which was filed in that interference? I show you a certified copy.

A. There were two Lange interferences and I will have to see the record to get the two distinguished.

Q. 7. I am now talking about No. 60,931.

A. May I see the claims in this interference, because there were two interferences? It is my recollection that it was patent No. 1,899,782 that was involved in the interference No. 60,931. I may be wrong.

Q. 8. You are wrong on that, Mr. Darby.

A. If you will let me see the declaration of interference I can tell you.

Q. 9. Do you mean patent 782?

A. Yes. This preliminary statement relates to some particular claims, and I cannot tell just what it relates to until I see the claims. If you will let me see a copy of the Lange patent, I think that will be adequate, No. 1,779,884. Yes, I recall it now. I prepared this preliminary statement on the basis of information given me at that time.

Mr. Warland: I offer in evidence certified copy of the preliminary statement of Albin H. Warth, in interference [fol. 426] No. 60,931 entitled "Warth vs. Lange."

(Marked Defendant's Exhibit RRRR in evidence.)

Q. 10. Now, in that interference 60,931 you made a motion to dissolve, did you not, on the ground of public use?

A. No. The first proceeding in the interference, as I recall it, was a motion by the party Lange to dissolve on the

ground that Warth could not make the claims. The Examiner of Interference sustained that motion and the record will show the grounds, and Warth appealed to the Board of Appeals, and the Board of Appeals held that the Warth application disclosed the subject matter of this broad Claim 2, which calls for a cap having a layer of sheet material and alcohol resistant filled with varnish adhering to one surface of the material and then a layer of resilient material—that is, cork—having waterproofed bonding. So the Board of Appeals, for the reasons that will show, held that Warth could make that claim.

Q. 11. Then after the decision by the Board of Appeals the interference was renewed on this claim of the Lange patent as the issue?

A. That is right.

Q. 12. Then you made a motion to dissolve after the testimony had started to be taken by Lange, did you not?

A. That is not exactly correct, no. After Lange had taken his testimony, which lasted for a period of two or three days, certain admissions made by Lange in his testimony taken in connection with evidence which we then found at the Crown Cork & Seal plant showed that the [fol. 427] Crown Cork & Seal Company, as well as other manufacturers as far back as 1915, had made a cap with simply a facing on of heat and alcohol-resisting coating and varnish and waterproof adhesive sticking that face to the cork, and therefore we felt there was nothing there which could be patented and which could be contested. We therefore filed a statement in the Patent Office to the effect that we had no desire to contest any interference on any such unpatentable matter. As a matter of fact, we have the correspondence here, I brought it in response to your subpoena to show you what we were referring to at that time. If you would like to see them, I will show them to you.

Q. 13. I show you paper No. 28 in interference No. 60,931, which is headed Motion to Dissolve, and says, "The party Warth moves either that a public use proceeding be instituted or that this interference be dissolved. Investigation by counsel preliminary to taking proof has established that the invention has been in public use by the Crown Cork & Seal Company of Baltimore, Maryland, assignee of the Warth application, as well as by others in the United States since 1918, and even though the party Warth should

prevail in the issue of priority a patent could not be granted. Alvin H. Warth, by Cushman, Darby & Cushman, Attorneys."

You made an affidavit attached to that?

A. May I explain that, in response to the previous question I wasn't considering this technical matter. That is what we filed, yes.

Q. 14. This is entitled a motion to dissolve?

A. That is correct, but it is a statement that we desired no further contest.

[fol. 428] Q. 15. And you attached an affidavit to that motion?

A. That is correct, I believe. I would like to see it.

Q. 16. I notice that affidavit states, "That recently deponent had occasion to examine the proofs available in support of the case for the party Warth in this interference, and that to deponent's surprise it was found that the assignee of the application, Crown Cork & Seal Company of Baltimore, Maryland, had been manufacturing and selling caps having therein (a) a cushion liner (b) a paper facing united to the cushion liner by (c) a waterproof adhesive, and (d) a varnish facing on the paper resistant to acids and alcohol.

"That deponent has found that this material has been manufactured and sold by the Crown Cork & Seal Company, as well as by others in the cap industry almost continuously since 1915 or 1916."

Is that the affidavit that you signed?

A. That is correct, that is the affidavit.

Q. 17. You say that material has been manufactured and sold as well by others in the cap industry. Can you tell me who those others were?

A. Right now I do not recall the others, but I believe the Lange testimony—I haven't read it for, I should say, two years—referred to manufacture by other companies, among those being the Irvington Varnish & Insulator Company, making a certain Harvel paper, which had an alcohol resistant finish in the caps and sold to cap manufacturers, and the Pittsburgh Varnish & Insulator Company, which also sold to cap manufacturers. As a matter of fact, I went [fol. 429] to Pittsburgh to investigate that use at that time before making the affidavit.

Q. 18. Now, after you filed this motion to dissolve or statement to the Patent Office, whichever you choose to call

it, Lange refused to file his testimony on the ground that the interference had been dissolved?

A. That is correct, he did not file it. As a matter of fact, I could not get my records which had been left with the notary, or my partial copy of testimony which had been left with the notary public. And we filed a petition with the Commissioner of Patents to compel Lange to deliver our copy of testimony on which partially we had based that statement, and there was a hearing before the Commissioner in which he ordered them to produce those papers.

Q. 19. There were several hearings and voluminous briefs and memoranda filed by both sides?

A. There were, in our efforts to get those papers to make them available for reference.

Q. 20. You made an affidavit annexed to that first petition, did you not?

A. I would like to see it, there were so many papers there.

Q. 21. Just a moment and I will find it. I show you an affidavit signed by John J. Darby on May 20, 1932, and that affidavit contains the following statements: "That the statements made in deponent's affidavit filed April 5, 1932, as well as in the motion to dissolve, were based largely upon testimony given by the party Lange, since the party Lange had furnished materials to the Crown Cork & Seal Company during the years in question and had confirmed deponent's suspicions, previously stated to attorneys for Lange, that material made by the party Lange and used [fol. 430] for many years by the Crown Cork & Seal Company responded to the single claim in issue."

A. That is right; that is referring to this Claim 2 of patent 1,779,884, granted to Lange.

Q. 22. You also said in that affidavit that, "Deponent based his affidavit in support of the motion to dissolve largely upon the testimony and admissions by the party Lange"?

A. That is correct.

Q. 23. Have you got the testimony of Lange?

A. Yes, I have it here. I may say I haven't read it for two years, but I have it here.

Mr. Warland: In the meantime I will mark in evidence the affidavit of John J. Darby, dated May 20, 1932.

(Marked Defendant's Exhibit SSSS in evidence.)

Q. 24. You have some papers in your hand. Am I to understand that is all the testimony given by Lange in this proceeding?

A. I cannot tell you anything about these papers except this: That after our unsuccessful attempts in the Patent Office to obtain the testimony that was taken by Lange, the Commissioner having issued two orders on his attorneys to produce them, the papers having largely my personal notes on them, we filed a suit in the—the Crown Cork & Seal did, we as their attorneys, in the United States District Court for the Southern District of New York, to compel them to produce those papers.

After that suit was filed Mr. Lange said that he would order his attorneys to produce what papers they had. I [fol. 431] received a brown envelope—that happens to be the original envelope—with these papers and I think it was about a year and a half ago, and some exhibits. These are the papers that were delivered to me and that is all I know about them. I have not read the testimony since because the interference had terminated and that is all I know about it, and here they are. This may be the testimony and it may not.

Q. 25. You say it may not; it is all the testimony in the Lange Interference No. 60,931 that you know about?

A. I mean that is all I have.

Q. 26. And all you ever did see, is that right?

A. Why, a lot of it is what I have never seen because the testimony concluded before I had received 50 per cent. of what is there.

Q. 27. So far as you know does this constitute all the testimony in that interference?

A. So far as I know.

Mr. Warland: I offer that testimony in evidence.

Mr. Scull: I object to it, if the Court pleases, except in so far as it may merely be a paper that Mr. Darby produces.

The Court: I will take it, as Mr. Darby stated, that he did not know it was all of the testimony. It is simply what he received.

Mr. Scull: All I want to say, your Honor, is that it be understood that we are objecting to its use as proof of any of the statements contained in that testimony.

Mr. Warland: I should like to say in that connection that I tried strenuously to get Mr. Lange here as a witness. I

[fol. 432] had a process server working on him for two months in Jersey but we have been unable to get him.

The Court: I will take it, but it is not a substitute for testimony of Mr. Lange given here. If that is your purpose it will not be received. It is not evidence of anything he would testify to. All that you can use it for would be in so far as it might be information on which Mr. Darby relied, but it is not a substitute for the testimony of Mr. Lange taken on this stand will not be considered by me as testimony of Mr. Lange.

Mr. Warland: I am not offering it as evidence of the facts but simply to give Mr. Darby an opportunity to explain some of it.

The Court: I will take it as that on which Mr. Darby may have relied on making any statement. Mr. Darby said to some extent he did rely on that and to that extent I will receive it.

Mr. Warland: Thank you, your Honor.

(Marked Defendant's Exhibit TTTT in evidence.)

Q. 28. As I understand you Lange repeatedly refused to file that testimony and you had to bring a suit against him in the United States District Court?

A. If you please, against his counsel who had the testimony and who refused to produce it.

Q. 29. And the suit was brought against Pennie, Davis, Marvin & Edmonds?

A. That is correct.

Q. 30. Tell me, how was that suit terminated, that you [fol. 433] speak of as having been brought against Pennie, Davis, Marvin & Edmonds, to compel Lange to file that testimony?

A. It is going back I guess a year or two. I will try to tell you as accurately as I can. I know that it was settled by Lange saying that he did not care to spend money on the thing any further, that he was not going to pay his counsel any more money and that so far as he was concerned he would tell them to deliver a copy of the testimony.

Q. 31. Then there was an agreement made with Lange, was there not, about that time?

A. There was a license agreement granted Lange, yes. I think that if I may look at the paper—Mr. Lange was

granted a license to manufacture paper for Crown Cork & Seal licensees, for spots.

Q. 32. Do you have a copy of that here?

A. I think I have.

Q. 33. Will you please produce it?

A. Yes, sir. I have here a carbon copy of an agreement that was in my file. I don't have the signed copy and in substance I am pretty sure this correspondence with the one that was signed. I will check it later and if there is any discrepancy I will try to obtain the original for you. This is simply my carbon copy for my file.

Mr. Warland: I offer this copy, subject to corrections if necessary by comparison with the original, in evidence.

(Marked Defendant's Exhibit UUUU in evidence.)

Q. 34. Who would have signed that agreement, Lange and the Crown Cork & Seal?

A. That is correct.

Q. 35. Now I notice on an inspection of the file of that [fol. 434] suit in the Southern District of New York to which you have referred, the file contains the following, recorded on the 31st day of January, 1934. Paragraph 2 of the order, "That in accordance with paragraph 2 of the agreement heretofore entered into by and between the Crown Cork & Seal Company, Inc., party of the first part and L. G. Lange, party of the second part, the firm of Pennie, Davis, Marvin & Edmonds of which certain of the defendants herein are members, shall deliver forthwith, upon the signing of said agreement, a complete copy of testimony taken in a certain interference proceeding involving the Lange patent No. 1,779,884, including the partial copy bearing notes made by Crown Cork & Seal Company's attorneys, and also photostatic copies of all exhibits introduced in evidence; the latter to be prepared at the expense of Crown Cork & Seal Company, the plaintiff herein.

"That this action be and the same hereby is dismissed with prejudice but without damage or costs to either party."

Do you remember such an order being entered?

A. No, I do not. You see, I had nothing to do with the order up here. The case in the court was handled primarily by Mr. Thomas Ewing as I recall it. I am speaking however purely from memory and those details have not left a very vivid impression in my mind.

Mr. Warland: I offer a copy of that portion of the order, with the privilege of putting in a certified copy of the order at the proper time, in evidence.

(Marked Defendant's Exhibit VVVV in evidence.)

[fol. 435] Q. 36. Now, while all this proceeding was going on in court, in the suit against the attorneys for Lange, what happened to the interference?

A. I would have to determine that by comparing the dates of the interference records with the dates of the order because—I would not want to testify from recollection. If I saw the dates of the decisions of the interference and compared them with the date of the court order I can probably tell you. I do recall that the interference proceeded, and that it was reinstated by the Commissioner and that Lange still declined to file his testimony and that an award of priority was issued to Warth by reason of Lange's refusal to file his testimony.

Q. 37. I will read this paper and I will ask you if that refreshes your recollection. It states, "August 24, 1933, paper No. 64, Interference No. 60,931, Lange vs. Warth. The date set for final hearing in this case having passed and Lange, the junior party having failed to file any testimony within the time allowed for that purpose a priority of invention of the subject matter at issue here is hereby awarded to Warth, the senior party, dated December 11, 1933." Does that refresh your recollection as to what was done?

A. It refreshes my recollection to the fact that there was a decision entered and the date of the decision, but I cannot correlate that with the other events until I see the dates of the court order.

Q. 38. That court order is dated January of 1934.

A. And this order is 1933. It confirms my impression that I had but I did not like to testify to it. We were persistently trying to get that testimony. We went to the [fol. 436] Commissioner twice and he issued two orders on Pennie-Davis compelling them to file it and they defied him. They even threatened to me to file a bill in equity against the Commissioner of Patents, to prevent him from reinstating the interference. This interference terminated while we were still battling with Lange trying to get that testimony.

Q. 39. So far as the proceedings in the interference in the Patent Office show it is a fact, is it not, that a judgment of

priority was taken by default against Lange while the suit was pending?

A. Upon claim 2 of the patent No. 1,779,884 to Lange, the Lange patent, that is correct.

Q. 40. That serial application No. 360,895, which was the subject matter of this application for Warth patent No. 1,899,783 was finally abandoned was it not?

A. May I see a copy of both files and I will answer that. I do not like to speak from memory.

Q. 41. I show you the file of 360,895 and the file of patent No. 1,899,783.

A. I now recall this. Following the conclusion of that interference on claim 2 of the Lange patent 1,779,884 I advised the Crown Cork & Seal Company that the subject matter of that interference was entirely too broad, that in view of the evidence we have the thing to do was to abandon such subject matter as the subject matter of that claim We had pending another application, Serial No. 492,546, directed to more specific subject matter——

Q. 42. Would you mind stating when that was filed?

A. Filed on October 31, 1930, but containing in the specification a virtual duplicate, in other words, there were broad claims in the case in the Lange interference and spe-
[fol. 437] cific claims in the other case. So I advised them to abandon that case and to take out the specific subject matter in the other co-pending application.

Q. 43. Those claims which you have in the divisional case you filed and which are now the six claims of this patent 1,899,783; those were filed in the original case 360,895 for the first time in April, 1932, were they not?

A. The record would show that.

Q. 44. That is a matter of record?

A. That is a matter of record.

Q. 45. Let us go to the so-called Johnson patent 1,967,195.

A. May I have a copy of it, please?

Q. 46. Have you got a copy of patent 1,967,195?

A. That is the Johnson patent?

Q. 47. Well, it is entitled Warth patent but——

A. Which do you want me to look at, the Johnson patent or Warth patent?

Q. 48. I wish you to look at the Warth patent 1,967,195.

A. Oh, yes.

Q. 49. That is the patent containing the three method claims for manufacturing the cap.

A. This is a patent containing three specific divisional method claims, claims limited to a species of the original method disclosure.

Q. 50. They are the method claims of that patent that you are suing us on, is that right?

A. They are the claims of one of the method patents we are suing you on.

Q. 51. This patent 1,967,195, that has the three method claims?

A. Well, yes, there are three claims.

Q. 52. Those three are all in suit?

A. That is my recollection.

Q. 53. When Mr. Warth filed that application you copied claims 28, 29 and 30 of the Johnson patent 1,852,578, for in-
[fol. 438] terference purposes, did you not?

A. We copied certain claims of the Johnson patent. Do you wish me to check those numbers? We copied claims 28, 29 and 30 in Johnson patent 1,852,578.

Q. 54. And that interference was promptly declared by the Patent Office?

A. It was.

Q. 55. And then in that interference you made a motion to shift the burden of proof in order to obtain the date of January 7, 1927, which is the date of the patent to Warth 1,788,260, is that right?

A. That is correct.

Q. 56. That motion to shift the burden of proof was denied by the Examiner of Interferences on the ground that the Warth application of January 7, 1927, did not have sufficient disclosure to warrant Warth making these claims in interference?

A. The grounds are stated in the decision.

Q. 57. That decision came down approximately in October, 1933?

A. I do not recall the date, but it came down after a hearing.

Q. 58. After that decision came down then the Crown Cork & Seal Company bought this patent from Johnson No. 1,852,578, did it not?

A. There is a great deal more than just that to it, if I may explain it.

Q. 59. You got an assignment from Johnson of that patent?

A. Ultimately we purchased the patent, yes.

Q. 61. Have you got the original assignment?

A. Have I got the original assignment?

Q. 62. Yes.

A. I have the original assignment or at least a copy of it.

Q. 63. Now, I want the original if you have it.

A. I will see if the original is here.

[fol. 439] Q. 64. We have a copy in evidence, I want the original.

A. I do not have the original here, but I think Mr. Fusting has the original. I might explain that we never keep the originals of assignments as counsel for any client.

Q. 65. I show you a decision of the Examiner of Interferences in Interference Warth v. Johnson, No. 66,201, dated October 2, 1933, and ask you if that refreshes your recollection as to when the decision was rendered.

A. It does.

Q. 66. That was the decision in which the Examiner denied Warth's motion to shift the burden of proof?

A. To shift the burden of proof, yes.

Q. 67. It appears in evidence here from the copy of the assignment of Johnson to Crown Cork & Seal Company that that assignment was executed December 12, 1933.

A. It was as I recall some time in December, yes.

Q. 68. Now, the record in the Patent Office in that interference shows a stipulation was made on March 16, 1934, to the effect that the record for Warth should consist of an affidavit of Frank Lloyd, Monroe Humason and Albin H. Warth. I showed you that stipulation.

A. I recall that stipulation, yes.

Q. 69. And the paper you have in your hand is the printed record for Warth in the final hearing in that interference consisting only of those three affidavits?

A. That is correct.

Q. 70. And that was the only record that was put before the Patent Office?

A. That is correct.

Q. 71. And in view of those affidavits the Examiner of Interferences reversed his prior decision and gave Warth the benefit of the January 7th, 1927, application, is that correct?

A. That is correct.

[fol. 440] Q. 72. Now, if Crown Cork & Seal Company owned this Johnson patent in December, 1933, why did you go through this interference proceeding in the Patent Office making up this record of three affidavits?

A. The explanation is this: Following the decision of the Examiner of Interferences refusing to shift the burden of proof, we immediately made plans to take testimony. We issued a subpœna on Mr. Johnson as the first witness for the Crown Cork & Seal Company. We came to New York prepared to take testimony in Brooklyn. When we arrived there, Mr. Johnson, being there under subpœna, asked us if we would not settle. We told him that we would settle for the cost it would involve in fighting the thing, and nothing more. He said that he would like to stay in the business, he wanted to make machinery, since that was his living, and Mr. McManus, I took it up with him, and he said he had no objection since someone had to make the machinery for Crown Cork & Seal Company's licensees, and it was not the practice of Crown Cork & Seal Company to sell machinery to them, so therefore he was willing to give Johnson a license. That being the case, we settled with Johnson.

There still remained, however, the question as to whether Johnson or Warth was entitled to the claims. I discussed the matter with Mr. Seifert, Mr. Johnson's attorney, and we felt that counsel should not take upon themselves the responsibllity of allocating claims, particularly since some of these claims were in an issued patent. We therefore decided to let the Patent Office decide the matter finally, so that the record would stand. In the course of the discussion with Mr. Seifert, he agreed that the only question involved was whether Warth was entitled to the [fol. 441] benefit of the filing date, the January, 1927, date. He admitted that if Warth was, that Johnson was not entitled to priority since Johnson could not prove any dates earlier than Warth's filing date, January of 1927. We therefore agreed, as counsel, to submit the matter to the Patent Office on this sole issue, at a final hearing. The reason that we went to final hearing was that the Examiner of Interferences in this previous decision had said, on the motion to shift the burden of proof, all doubts are resolved against the party bringing the motion, and it had to go to the final hearing where doubts would not be resolved and the matter would be decided in the issue at final

hearing. For that reason we submitted it to the Patent Office and informed the Patent Office of the existing situation and told them that arrangements had been made whereby assignments would be delivered to the Crown people upon the decision of the Patent Office. The assignments at that time were in escrow.

Q. 73. Well, why didn't you record the assignment with the Patent Office?

A. The assignment was in escrow with the agreement until the Patent Office decided the question of final hearing.

Q. 74. And did the Patent Office know of the assignment?

A. They fully knew of the assignment.

Q. 75. And they knew the Crown Cork & Seal Company was the owner of the Johnson patent?

A. It did. It was informed not only by me, but by counsel for Johnson.

Q. 76. Now, let us go to patent 1,899,782.

A. Yes.

Q. 77. I show you the file of patent No. 1,899,782, two claims of which are in suit here. That application became [fol. 442] involved in an interference, did it not, with another patent of Lange's?

A. That is my recollection, yes.

Q. 78. Patent 1,758,610, to Lange?

A. That is correct. The issue was the single claim of the Lange patent.

Q. 79. Do you mind reading that, please?

A. "As a new article of manufacture, paper having a high gloss and having a coat of varnish on one surface of the paper and a coating of gutta percha on the other surface of the paper."

Q. 80. The preliminary statement of Mr. Warth in that interference states that he conceived the invention defined on or about the 1st day of July, 1915, and that he first disclosed said invention to others on or about the 1st day of July, 1915, and that he first made a written description of the said invention on or about the 1st day of January, 1917; that drawings of said invention were first made on the 1st day of August, 1926, and that the invention was reduced to practice by manufacture, using material of the character defined by the count on or about the 1st day of June, 1915, at Baltimore, Maryland, and that material of the character defined has been made and used in large quantities since

January 1, 1915. Did you prepare that preliminary statement?

A. On the basis of information given to me at that time, I think the record shows fully what the dates refer to.

Q. 81. Now, you took the testimony of Mr. Warth in that proceeding, and all the witnesses for the Crown Cork & Seal Company, did you not, as counsel?

A. That is right.

Mr. Warland: If your Honor pleases, I do not want to [fol. 443] take the time of reading certain essential parts of this testimony in here. If I offer this whole thing as an exhibit, it consists of well over 200 pages. I would like to offer it and be able to refer to the pertinent parts on a brief or in summing up.

Mr. Scull: Is this the record on behalf of Warth?

Mr. Warland: Yes.

The Court: Why don't you offer it and then in the event that you ever want it printed, you can agree on the part that you want printed? It can be taken as a whole and either side can refer to any part of it that they want.

Mr. Warland: Very well, your Honor, I offer it in evidence with that condition.

(Marked Defendant's Exhibit WWWW in evidence.)

Q. 82. Now just once more, to make it perfectly clear, has this assignment from Johnson to the Crown Cork & Seal Company, ever been recorded?

A. I think it has.

Q. 83. You don't know?

A. I have a very definite impression that it has.

Q. 84. How recently?

A. You are asking me a very difficult question. I should say it was recorded six or seven months ago or around that time, it may be four months, I just cannot recall, but the records in the Patent Office would show that.

Q. 85. The last time I looked it showed that it was not recorded.

A. My impression may be wrong. On second thought, with regard to that, perhaps that was recorded two months ago.

[fol. 444] Cross-examination.

By Mr. Scull:

X Q. 86. On direct examination you referred to some caps which you had here which illustrated what turned out to be the scope of the subject matter of the count in issue in the first Lange interference. Will you produce those caps, please?

A. Yes, sir. I do not have them here now, but I have them in the hotel and will get them.

X Q. 87. There is one expression that counsel used, that I think might better be explained. He said that judgment was taken on priority on this first Lange interference in favor of Warth. What is the fact as to Patent Office practice in a case of that sort? Does either of the parties have to do anything or is judgment entered automatically by the Patent Office officials?

Mr. Warland: Just a moment. Doesn't the record speak for itself on that point? I read to him a statement from the Patent Office showing priority was awarded to Warth in view of Lange's failure to take testimony. Judgment by default.

The Court: He is asking whether they entered judgment or whether anything is necessary in addition to that statement.

Mr. Scull: I want to rebut any implication that we made any move there to have priority awarded to us.

The Witness: Where an interference has gone to the testimony stage, as that one had done, and where the junior party, that is, the later one to file, such as Lange in this case, fails to file any testimony, the Patent Office of its own [fol. 445] initiative terminates the interference by awarding priority to the senior party simply upon attention being called there has been no testimony filed.

X Q. 88. As a matter of fact, you cannot stop that award of priority, can you, if you wanted to? Is there any procedure that provides for that?

A. I know offhand, after an interference has gone to that stage, of no way of terminating except by an award of

priority for one party or another unless by agreement, and we could not reach any agreement with Lange.

The Court: You could withdraw it or discontinue it, couldn't you, by agreement?

The Witness: By agreement.

The Court: If the two parties agreed, you could have withdrawn it?

The Witness: Yes.

Mr. Scull: After an interference is once declared, and they are declared automatically, the Patent Office will not dispose of that without some judgment in some fashion.

The Court: You cannot withdraw alone, but you can by agreement with both parties, can't you?

Mr. Scull: No, your Honor, we could agree that priority be awarded to one party or another, but we could not withdraw as you would withdraw a suit, for instance, because the Patent Office must determine whether or not a patent is to be issued.

X Q. 89. That is a correct statement is it not, Mr. Darby?

A. That is correct.

[fol. 446] X Q. 90. Now, my understanding about this testimony was that at least so far as the proceedings in the Patent Office were concerned, what you were trying to do wasn't merely to get a copy of that testimony for yourself but to compel counsel for Lange to file it as part of the public records in the Patent Office?

A. That is correct, so that the public records would always show that this was a matter of common use in those days.

Redirect examination.

By Mr. Warland:

R. D. Q. 91. Why didn't you file the testimony from Lange when you got it?

A. The testimony from Lange was not received, or the papers that were handed to me were not received until at least six or eight months, as I recall it, after the interference had been concluded and all matters were over.

R. D. Q. 92. You could have delayed this judgment paper being issued to Warth until after you got that testimony, couldn't you?

A. I suppose so, although I don't know whether the Patent Office would or would not have delayed it.

R. D. Q. 93. You did not try it?

A. I had a number of extensions obtained, yes, at least two or three were obtained, as I recall it, but again I am speaking from recollection.

R. D. Q. 94. I show you an advertisement in a magazine entitled "Spot Crowns," put out by the plaintiff, dated July, 1933, and that advertisement states in part, "The conclusion of litigation involving spot crown patents, paper tinfoil and aluminum-foil has resulted in the award to the Crown Cork & Seal Company, Inc., of the following patents: [fol. 447] 1,899,782, 1,899,783," also other patents, but those two patents are the patents in suit.

Now, did you have anything to do with the insertion of that advertisement?

A. As I recall, nothing whatsoever. I remember seeing it, but I do not think I ever saw it until after it was printed. I may have.

R. D. Q. 95. Was that the litigation which you just testified about?

A. I didn't write the advertisement, so I do not know.

R. D. Q. 96. Is this litigation involving these two patents, is that the interference litigation you have just been talking about in the Patent Office?

A. I presume that that is what the one who wrote the advertisement is referring to.

R. D. Q. 97. But you do not know?

A. Frankly, I do not know.

Mr. Warland: I offer this magazine in evidence.

(Marked Defendant's Exhibit XXXX in evidence.)

Mr. Warland: I offer in evidence the record of interference 66,201.

(Marked Defendant's Exhibit YYYY in evidence.)

Mr. Warland: I offer in evidence a copy of the McManus patent in suit 1,339,066; and the references set up in the answer.

(Marked Defendant's Exhibit ZZZZ in evidence.)

Mr. Warland: I offer in evidence a certified copy of the File Wrapper and contents of the application of Albin H. Warth filed November 7, 1930, Serial No. 494,201, which is [fol. 448] referred to in one of the patents.

(Marked Defendant's Exhibit AAAAA in evidence.)

Mr. Warland: I offer in evidence a certified copy of the abandoned application of Albin H. Warth filed August 21, 1926, Serial No. 130,631.

(Marked Defendant's Exhibit BBBBB in evidence.)

Mr. Warland: It is stipulated on the record that the patent to Alberti 1,199,026, is owned by the plaintiff, Crown Cork & Seal Company, and has been owned by it since the amalgamation of the New Process Cork Company.

The defendant rests, if the Court please, with just one exception. I have not put an expert on the stand. As I understand, the function of an expert is to explain the structure of prior art patents. I do not think it requires an expert to explain the structure of a center spot stuck on a crown cork, and I will either go over the references very briefly now or refer to them in my brief, as your Honor prefers. I should think it might be better to leave it to the brief.

The Court: I do not care. If you put them in the brief I will read the brief.

Mr. Warland: Then I think that is what I will do.

The Court: If you want to do it now, it is immaterial.

Mr. Warland: I do not like to take your Honor's time.

[fol. 449] The Court: I will read the brief.

Mr. Warland: I will make the suggestion again then that your Honor inspect our plant. It may be after the other side put in their testimony your Honor might feel that you would like to see it.

The Court: Well, we will see.

JOHN W. GILBERT, recalled as a witness on behalf of the plaintiff, in rebuttal, having been previously sworn, testified further as follows:

Direct examination.

By Mr. Scull:

Q. 22. You are the John W. Gilbert who testified here before in the prima facie case?

A. That is right.

Q. 23. And you are employed by the duPont Company at the Parlin plant, that is right?

A. Correct.

Q. 24. And in your employment there as a chemist have you been accustomed to making exposure tests for lacquers and modifications of lacquers for special purposes?

A. I have been since 1923.

Q. 25. Now, have you recently tested the products of the materials set forth in reissue patent 16,803 and Hitt patent 1,710,453 to determine whether or not the materials made in accordance with the disclosures of those patents is thermoplastic or has thermoplastic properties?

A. I have.

[fol. 450] Q. 26. What is the fact for that?

A. As a result of my tests they have not.

Q. 27. In each case you have made up the composition as set forth in those respective patents, is that right?

A. I have, yes.

Q. 28. And then you tested that to determine whether or not after it was set it could be made tacky by heat, is that right?

A. I did, yes.

Q. 29. And you found it was not capable of that, is that correct?

A. That is correct.

Cross-examination.

By Mr. Warland:

X Q. 30. Do I understand you to say that the duPont Company—this 4620 does not contain the ingredients of Hitt 1,710,453?

A. I did not say anything like that.

X Q. 31. Well, does it contain the ingredients or is it the same as Hitt Patent No. 1,710,453?

A. I don't know.

X Q. 32. Do you know why this tin put out by the duPont people bears Hitt patent No. 1,710,453 and reissue No. 16,803?

A. I would not know that, it is handled by another department entirely. It is out of my province.

X Q. 33. Did I understand you to say when you were on the stand on your prima facie case you did not know what material the defendant was using?

A. The defendant?

X Q. 34. That is right, yes.

A. I don't know.

X Q. 35. I show you an article written in the duPont Magazine No. 6-7, entitled "Thermoplastic Cement. Another innovation from the same source is an adhesive that can be used to join wood and metal and a variety of other [fol. 451] dissimilar substances so that when once cemented together they stay that way. The bond is formed by fusing action resulting from the application of heat and pressure. This review is necessarily incomplete. Other developments are equally noteworthy but space forbids. It is enough to say that research is injecting new life in many industries; therein lies much of promise for the future." Does that refer to this 4620?

A. I would not know because I had no connection whatever with the article.

X Q. 36. You mean you had nothing whatsoever to do with this 4620 adhesive?

A. Nothing to do with the development of it.

X Q. 37. Don't you know anything about its sale—you know it is made in large quantities though, don't you?

A. I do.

X Q. 38. So far as you know it was advertised?

A. So far as I know, yes.

X Q. 39. And you know of a magazine called the duPont Magazine?

A. I do.

X Q. 40. And that is published every month and has been for a number of years?

A. Yes.

Mr. Warland: It is agreed between counsel that the date of this magazine is June and July, 1932, subject to correction. We have a photostatic copy but it is very indistinct.

The Court: Very well.

Mr. Warland: I offer this photostatic copy of the duPont Magazine article, page 60 thereof, in evidence.

(Marked Defendant's Exhibit CCCCC in evidence.)

[fol. 452] CHARLES E. MCMANUS, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Mr. McManus?
A. Spring Lake, New Jersey.
Q. 2. And your occupation?
A. Manufacturer.
Q. 3. You are president of the plaintiff company?
A. I am president of the plaintiff company, the Crown Cork & Seal Company, yes, sir.
Q. 4. And you have been since when?
A. Since December 29, 1927.
Q. 5. And you are the Charles McManus who is named as the inventor in patent No. 1,402,780 and patent No. 1,213,926, which I now show you, are you not?
A. I am, yes, sir.
Q. 6. And did you ever attempt to make spot caps by means of the machine shown in patent 1,402,780 and with the spot material of patent 1,213,926?
A. Yes. That is 1,402,780?
Q. 7. Yes.
A. Yes.
Q. 8. Now tell us what the history of that was.
A. Of this particular machine?
Q. 9. Of the machine, yes, and——
A. This machine took care of two kinds of material, one was a parchment paper with glue and gelatine adhesive and the other was a tin-foil that carried a fibrous material with gelatine adhesive. The crowns were fed into the machine just before the paper was cut and there was a little reservoir with a dauber that contained water and formaldehyde and that would moisten cork and afterwards we would cut [fol. 453] out a disc and place it on the center of the cork and then she would go into the top pressure drum.
Q. 10. Now, first taking the paper, and what adhesive was used with that, did you say?
A. We used a glue and a gelatine adhesive, the same that is on any tape that you use today for corrugated boxes.
Q. 11. That is, it was water soluble?
A. Yes.

Q. 12. The same sort of thing that you put on postage stamps?

A. The same thing.

Q. 13. And what you were really doing was first moistening the surface of the cork which was already in the shell and adhered to the, moistening that surface and then bringing the glue down on it and using the moisture you had previously deposited on the cork to soften the glue?

A. That is correct.

Q. 14. What was your experience in connection with that so far as that method was concerned?

A. When we deposited the disc that was cut out of the strip in the crown she would be in the center, but that disc sort of floated on top of the crown, and as we moved it along to put it in the pressure drum a very large percentage would go off center, and this machine had a very slow speed, it ran at about a speed of 40 a minute, and even at that we got about 20 per cent. of them off center. It was a very costly method of manufacture.

Q. 15. How did you take care of that off-center, did you send out those caps?

A. Sometimes a few would get by, but we tried to pick them out by double inspection, an inspection would be at the machine and another one on the table.

[fol. 454] Q. 16. Now, are those that were off-center and those that were rejected, did that mean the whole cap was wasted?

A. No, we would pull the center spot off and re-run it again.

Q. 17. To what extent did you manufacture and sell such paper spots?

A. My recollection is where I worked on those things early in 1916, the war started, it came along and our factory was taken from us and we were forced to move and I was unable to get back again there until about 1919, at which time we sent out a number of samples to different customers, and then we shipped, I judge, from that time on until 1926, possibly in the neighborhood of 100,000 gross.

Q. 18. Were there very many repeat orders?

A. No, we always had trouble with it, and during that time I may say in 90 per cent. of the shipments we had to make adjustments.

Q. 19. They were using paper and did you tell us parchment?

A. We did use parchment paper, but there was not so many of those. What we sold the most of was tin-foil mounted on paper carrying this adhesive.

Q. 20. What was your experience with parchment paper?

A. Parchment paper would wrinkle and the moisture would go through the parchment paper back of the cork, and would moisten the glue and the disc would quite often come off and go in the bottle.

Q. 21. Now, the foil that you refer to, was that made up in accordance with this patent 1,213,926 in which, as I understand it, there appears a piece of paper that is fastened to the back of the foil with water glass?

A. Yes, we used water glass on the paper.

[fol. 455] Q. 22. That is to say the strip that you fed into the machine was first foil, then a strip of paper fastened to that foil by means of water glass, and on the outside of that paper there was this water soluble gum, is that right?

A. I can't find that patent.

Q. 23. That is 1,213,926.

A. That is 1,213,926?

Q. 24. Yes.

A. Why, yes, that was made up, we used the metal foil, then we used a silicate of soda to cement it to the fibrous material, and the fibrous material had glue adhesive on the underside.

Q. 25. That fibrous material was actually paper?

A. The fibrous material was actually paper such as you use today on cartons.

Q. 26. And that paper in turn had on its outside surface so far as the strip was concerned, water soluble cement?

A. That is correct.

Q. 27. Did you attempt to use any heat-fusible cement to fasten your spots on back in those early days?

A. I used, at times I used copal and resin with a little wax in it to soften it up, but we had great difficulty with that because it was rather brittle.

Q. 28. Had you worked on making spot crowns prior to this period beginning say in 1915?

A. I did.

Q. 29. Where was that?

A. In Millis.

Q. 30. Connected with the——

A. For the United Cork & Seal Company.

Q. 31. What was your work there?

A. My first work there was on the Rex patent which is known in this case as the Millis patent, where you cut the cork and insert a cup-shaped tin, tin-foil.

[fol. 456] Q. 32. Was there any work done in an attempt to avoid that?

A. Why, yes, in the latter part of 1911 we took away these cup-shaped discs, and I replaced them on top of granulated cork, and I would mold them directly in the shell with the granulated cork.

Q. 33. Did that work out successfully?

A. The holding of the disc in was much better than we could obtain with the natural cork, but our difficulty would arise there from kernels of the composition cork getting into the corrugations, and as we fed them in the hopper the small kernels of cork would sometimes come down in the chute and get in the bottles.

Q. 34. In that period from 1919 to 1926, when you were selling this 100,000 gross of spot crowns were you doing any experimental work in attempting to improve on the method?

A. Very little, because I was busy on so many other things at that time that I did not have time to do it.

Q. 35. Well, why were you interested in 1915 and 1919 in getting the spot crown?

A. I had always felt, from the time that I went to work with the United Cork & Seal Company, that if anybody could develop a commercial center spot crown, there would be a very large market for it, and it would probably replace the large volume of natural cork that was done by the Crown Cork & Seal Company at that time.

Q. 36. Your idea was that the composition cork plus the spot could be made cheaper than, and therefore would be able to replace the market which at that time, I understand, the Crown Cork & Seal Company had to a large extent, in natural cork?

A. I did.

[fol. 457] Q. 37. What has been the fact today? Has it worked out that way?

A. It has proven itself today, yes.

Q. 38. When did you first hear of a nitrocellulose resin cement for use with spot crowns?

A. The first I heard of it was through Dr. Warth sometime in 1930. He told me that he was working on thermo-

plastic cement, I did not know just what kind it was, but he told me it was thermoplastic.

Q. 39. You don't mean gutta percha?

A. No, it was along the gun-cotton line.

Q. 40. Did you see any specimens that he had at that time?

A. Why, he had samples, but I could not tell very much from the samples, and I told him I would like very much if he would spend a lot of time on this and see if he could make it commercial for us so it would run in our machines, and several times I went to him, but he said, "I am working on it, but I am busy and I cannot give a lot of time to it."

Q. 41. Do you know Mr. Weisenburg?

A. Yes, I do.

Q. 42. He was at one time in the employ of the Crown Cork & Seal Company?

A. Yes.

Q. 43. Did you ever have any contact with him, and particularly in connection with cement for attaching spots to crowns?

A. I did.

Q. 44. What was that?

A. Well, about a year after Dr. Warth talked to me about what he was doing, I was getting a little impatient with Dr. Warth for not giving us this, so we could use it commercially, so I went to our research department that is in the factory, where they did a lot of cork research work, and Mr. [fol. 458] Weisenburg had charge of it and I asked him if he would work on cellulose binders for me, but I did not let Mr. Weisenburg know anything about what Dr. Warth was doing, and then Mr. Weisenburg produced a number of samples, some made with nitrocellulose, and some with rubber in them, and some with glyptal resin, and finally he made one that was very, very good, and about that time, I believe somewhere in 1932, or sometime, Dr. Warth came along with his, and it looked so good to me that we went to look for equipment and then it took us quite a long time after that to get the necessary equipment to coat this on the metal-foil.

Q. 45. As I understand it, did you let Dr. Warth know that you had put Mr. Weisenburg to work on this nitrocellulose?

A. No, I have a habit in our research department—the research department is under me—and the engineering department—I very seldom tell one man what another man is

doing. I am always after pushing them to get results and I like competition in our research and engineering department.

Q. 46. You are acquainted, are you not, with Mr. John A. Johnson?

A. Yes.

Q. 47. Was Mr. Johnson ever at the plant of the Crown Cork & Seal Company in Baltimore, to your knowledge?

A. Yes.

Q. 48. When was that?

A. It was sometime, I believe, in March or April of 1928, several months after I had become president.

Q. 49. Just tell us about that, will you?

A. Mr. Johnson called me at the New York office and he says—he addressed me by the name of Mac, he says, "Now, [fol. 459] Mac, I am a stockholder in your company, and you are not going to be able to keep me out of the Crown Cork & Seal's plant." I said, "Of course not." He said, "I would like to go down there sometime." Then I heard again from him and I made an appointment to meet Mr. Johnson at the Baltimore plant. He came down there one morning either in April or May—I know it was before I went to Europe.

Q. 50. When was that?

A. Five or six weeks before I went to Europe. My recollection is I went to Europe either the last part of May or the first part of June.

Q. 51. That is in 1928?

A. 1928.

Q. 52. When Mr. Johnson came there how much of the plant did he see, to your knowledge?

A. I first took Mr. Johnson back to where the operation starts, that is where we granulate our cork. I took him through the cork department, and from that I brought him to the decorating department, where we decorate the tin plate, and from that to the stamping department, and then to the assembly department, and then to the tin spot department.

Q. 53. Now, about how many spotting machines did you have in operation on that floor at that time, do you remember?

A. Fourteen.

Q. 54. These machines were what you know as the Gobel spotting machines?

A. The Gobel type, yes.

Q. 55. And was Mr. Johnson shown those machines in operation?

A. He was.

Q. 56. Was he there for any length of time?

A. He was there for quite a while. I was in that department about five minutes with Mr. Johnson when the gong [fol. 460] was rung for me to answer the 'phone. I excused myself from Johnson and I went to the 'phone, and I was back again in about ten minutes. During that time Mr. Johnson was in that department. All in all I don't think he was there much over twenty minutes.

Q. 57. Was there any discussion, anything said by you to Mr. Johnson in reference to this machine?

A. I said to Mr. Johnson, "Well, I think we have got this thing licked for commercial, and we are now designing a new machine, and I expect to get very large production on it," and he said, "How are you protected?" and I said, "I am leaving that to the patent attorneys, and I think we are going to have and have got very good protection on the spot crowns."

Q. 58. How fast were these spotting machines running at that time?

A. 350 per minute.

Q. 59. I show you a couple of photographs and I ask you whether they show the machines which were in that spotting department when Mr. Johnson was there?

A. This is the machine, yes (examining photographs).

Mr. Scull: I offer these two photographs in evidence as a plaintiff's exhibit.

Mr. Warland: I object to them as being immaterial. Of course, I do not know the purpose of them. The question here is, did we infringe their patents, not what machine they are using.

Mr. Scull: If your Honor pleases, we must carry our date back, and this machine will come in as part of our carrying our date of invention back.

[fol. 461] The Court: I will take it. I do not know how much it will confirm.

(Marked Plaintiff's Exhibits 41 and 42 in evidence.)

Q. 60. To your knowledge, Mr. McManus, is it possible to attach a spot of foil having a gutta percha backing to

the cork of a crown without using a hot plunger or without preheating the cork?

A. Yes.

Q. 61. Have you seen that done?

A. I have.

Q. 62. How was it done?

A. We are doing it in our Belgium factory. First we have a sort of a trough made out of cast iron, it is about fourteen inches long and five inches wide, and we keep a temperature in there from 190 to 208 degrees. We pass our metal-foil with the gutta percha through this bath of hot water and it softens the gutta percha sufficiently to stick to the crown.

Q. 63. In other words, you are preheating the strip, rather, preheating the gutta percha on the strip, before it goes to the punches which punch out the spot?

A. That is correct.

Q. 64. And that is sufficient to cause it to stick to the cork?

A. Yes, sir, it works very well.

Q. 65. There has been a great deal of testimony here——

The Court: It sticks under pressure?

The Witness: Yes, the punches put it on the cork, and it must go through the pressure drum to cool it.

Q. 66. There has been a great deal of testimony here on the part of the defendant about certain visits of Crown Cork & Seal representatives to the Gutmann plant and con- [fol. 462] ferences between officials of the plaintiff and the defendant. Did you personally ever go to the defendant's plant?

A. No.

Q. Was there any report given to you as to this so-called Cohn combined machine in which defendant had hooked an assembling machine directly to a spotting machine?

A. Yes.

Q. 68. You were informed, were you, that the defendant claimed to have a patent or some patent rights on that?

A. Yes.

Q. 69. Did you at any time give any consideration to the purchase of that patent or patent rights?

A. No.

Q. 70. Did you ever authorize anybody to make an offer for such patent rights?

A. No.

Q. 71. You certainly made none yourself?

A. No.

Q. 72. Did anyone else in the company ever give any such authorization?

A. Not to my knowledge.

Q. 73. Was it ever contemplated by the officers of the company, any such purchase?

A. No.

Q. 74. When you heard of this so-called improvement did you give it any consideration as to its value, possible value as a method?

A. No, I did not.

Q. 75. Why not?

A. Well, I thought it would be a very slow machine, and it was nothing more than we had today. I thought that the principle of that machine was involved in the one that we had.

Q. 76. Was there any particular advantage, so far as you know, as the manufacturer, in having the assembling ma- [fol. 463] chine so arranged in connection with a spotting machine so that the assembled crown could go into a box to be carried over in a hopper in the spotting machine and passed directly onto the spotting mechanism?

A. I do not know any advantage at all.

Q. 77. Do you know of any disadvantages?

A. Well, you will get more bad work than you will get if you do it in two separate operations, and a much slower production.

Q. 78. At what speed do you operate your assemblers in Baltimore?

A. You mean the——

Q. 79. I am talking about a single machine now.

A. You mean the assemblers for just the cork or for the spot——

Q. 80. Just the cork.

A. Well, our machines, a single machine, has two punches, you know, that is 1100 per minute, but with a single punch it is 550 per minute.

Q. 81. How many spots do you put on with a single machine, spotting machine?

A. Put 550 per minute, that is, today.

Q. 82. In other words, by having one assembler and one spotting machine side by side, you are turning out 550 spotted crowns per minute?

A. That is per punch.

Q. 83. Per punch?

A. Yes.

Q. 84. I didn't ask you this. Did you make or lose money on your spot crown business up until 1926?

A. I lost money.

Q. 85. And what happened in 1926? Did you just stop selling them?

A. Well, during that time, it was after a lawsuit I had with the International, and I was having a lot of difficulties [fol. 464] with trying to overcome it, and then I had negotiated to buy International, which I afterwards did. And then during that particular period I was thinking of building, putting up a building in New Brunswick, New Jersey, for the New Process Cork Company, because we had outgrown our quarters in Bush Terminal. But after taking an option on the land, I couldn't see spending the amount of money. And I had already started to buy stock in the Crown Cork & Seal back in 1922, and I thought I would be better off if I would try to get control of that company and move our plant into Baltimore, which I accomplished in the early part of 1927. That was my reason for not doing any more with it.

Q. 86. Then when you went to the Crown Cork & Seal in 1927, you found they were then turning out spots by the method which is involved here?

A. Yes, they were away ahead of me.

Met pursuant to recess at 2:00 p. m.; present as before.

Mr. Warland: No cross examination.

(Witness excused.)

[fol. 465] Melchor Marsa, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you live?

A. In Seville, Spain.

Q. 2. And how long have you lived in Seville?

A. Approximately one year.

Q. 3. What is your occupation?

A. Assistant manager.

Q. 4. Assistant manager of what company?

A. Corchera Internationale.

Q. 5. And this Corchera Internationale is a subsidiary of the Crown Cork International Company, is it not?

A. Yes.

Q. 6. And you have returned to this country to testify in this case?

A. I returned on business plus to testify in this case.

Q. 7. What has been your experience in the crown cork manufacturing business?

A. A long one.

Q. 8. Will you please start at the beginning and give us a brief history of it?

A. In 1912 I went to work with the International Cork Company in the experimenting department to develop a composition cork.

Q. 9. What company was that?

A. The International Cork Company. I developed a composition cork and I organized a department and the International then asked me to reorganize their whole factory. Later on I became general manager and superintendent and vice-president of the company. Up to 1925 I had [fol. 466] charge of all their general managing of that firm plus the experimenting and so forth.

Q. 10. What happened in 1925?

A. We sold out to the New Process Cork Company.

Q. 11. And were you associated therefore with Mr. Alberti who has testified in this case?

A. John Alberti and James Alberti and I were 100 per cent. owners of the stock issued.

Q. 12. What are your duties now in Spain, are you connected in any way with the handling of natural cork?

A. I am general manager of the factories to make natural cork, buying the cork wood and anything that pertains to its manufacture.

Q. 13. Throughout your experience with the International Cork Company what has been your experience in natural cork in crown caps?

A. Originally we were making nothing but natural cork and later on when we developed the composition we kept on making more and more composition.

Q. 14. Why did you make more and more composition?

A. To begin with the composition was much cheaper in price to manufacture than the other and secondly we found we could get as good results practically.

Q. 15. Did natural cork cause you any trouble while you were with the International Cork Company or was it a satisfactory product?

A. Natural cork has always been a source of trouble to everybody due to the fact that you can never eliminate the pores from the disc and you can never eliminate the taste that comes from the pores of the cork wood, and is in turn imparted to the drink.

[fol. 467] Q. 16. With this composition cork you were making with the International Company, would that take the place of natural cork in every instance?

A. They would.

Q. 17. In all cases could you use composition in place of natural cork?

A. We thought we could, some customers did not want to use it.

Q. 18. Did you make any effort while with International to use spot crowns at all?

A. Yes, a big number of efforts were made.

Q. 19. Over what period of time?

A. From 1914 to 1925.

Q. 20. Why were you trying to make spot crowns?

A. Due to the fact that we always felt that a closure with cork had defects. For instance, in the bottling of ginger ale we always found that through those pores the ginger ale will penetrate in time right to the tin and we always tried to find something that never would have the cork come in contact with the beverage, and that would be the solving of the problem.

Q. 21. Was this development of spot crowns an attractive field to the International Cork Company?

A. Our feeling at that time was if we could get a thing like that we would make a killing with it.

Q. 22. I have here a patent to Alberti 1,401,300, and I will ask you to look at that patent, tell me if you know anything about the machine illustrated in it.

A. I do.

Q. 23. Were you associated in any way in the development of this machine?

A. I was in charge of it.

Q. 24. In relation to the date on the patent, the application of June 19, 1915, when did you start work approxi- [fol. 468] mately on the development of this machine, have you any idea?

A. It might have been a couple of months before—you mean we built that machine?

Q. 25. Yes.

A. About a couple of months prior to that.

Q. 26. To what extent did you work on this machine before you got it into production. Did you get it into production?

A. We never got into production that machine and other subsequent machines that we built, it always was in an experimental stage in our machine shop.

Q. 27. Will you tell us something of the troubles you had with this and subsequent machines?

A. One of them was it was very hard to center.

Q. 28. Center what?

A. Center the tin disc into the thing, due to the fact that the albumen substance we put in there was slippery, and on centering it it always centered it one side or the other, which would leave the cork exposed to the beverage later on, that is when we have them centered that way. We had to depend on three punches to work on that material which was albumen, and naturally the machine had to run so slow that the production was very small.

Q. 29. Have you any idea at what speed you had to run the machine?

A. My recollection is between 40 and 50.

Q. 30. 40 and 50 what?

A. Revolutions per minute.

Q. 31. Does that mean 40 to 50 caps per minute?

A. Caps per minute.

Q. 32. I understand you never got that machine out of the machine shop into production?

A. Never. The longest we had it, the best we had it [fol. 469] there I think we had from 40 to 50 per cent.

approximately of rejects all the time, so there was no advantage in putting it into production under those conditions.

Q. 33. Have you any idea of how much expense the International Cork Company went to in trying to develop a satisfactory center spotting method over this period until 1925?

A. I haven't got the records with me, if I had them I could probably give the amount that was charged to that experimenting. Offhand I will say between twenty-five and thirty thousand dollars.

Q. 34. And you were never successful?

A. Never.

Mr. Darby: That is all.

Cross-examination.

By Mr. Warland:

X Q. 35. Mr. Bogdamffy was employed by the International Cork Company through 1912 and 1913, wasn't he?

A. Yes.

X Q. 36. And was Mr. Nagy employed there when you first went there?

A. He was.

X Q. 37. He left shortly after you went there, is that right?

A. A year or two after that.

X Q. 38. When did you go to work there?

A. July or August of 1912.

X Q. 39. During the Spring, in fact the Summer and Fall of 1913 International Cork Company was very busy changing its methods of manufacture, wasn't it?

A. Yes.

[fol. 470] ARTHUR VOLPE, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside?

A. In Baltimore.

Q. 2. Where are you employed?

A. Crown Cork & Seal Company.

Q. 3. At the plant of the plaintiff company in this case?

A. Yes, sir.

Q. 4. How long have you been employed in Baltimore by the plaintiff?

A. Since the last part of February, 1928.

The Court: In what capacity are you employed?

The Witness: Maintenance man, taking care of machines.

The Court: All right.

Q. 5. Does your work bring you in contact with center spotting machines?

A. Yes.

Q. 6. And you are familiar with center spotting machines?

A. Yes.

Q. 7. Before you went to Baltimore in the latter part of February of 1928 where were you employed?

A. The New Process Cork Company in Brooklyn, New York.

Q. 8. How long were you employed by the New Process Cork Company?

A. Since May of 1923 until the time that I went with the Crown Cork & Seal.

Q. 9. And prior to May of 1923 where were you employed?

A. The Standard Cork Company at Philadelphia.

[fol. 471] Q. 10. How long were you employed there?

A. One year.

Q. 11. And prior to the Standard Cork Company where did you work?

A. For Joseph Corren.

Q. 12. Are you acquainted with Mr. John A. Johnson who operates the A. Johnson Machine Works in Brooklyn, New York?

A. Yes.

Q. 13. When you were in Brooklyn did you see him occasionally from time to time?

A. Quite often.

Q. 14. Did you see him in Baltimore, Maryland, after you went down there?

A. I did.

Q. 15. Have you any recollection as to when you first saw him in Baltimore?

A. I seen him a short time after I went to Baltimore, somewhere around April or May.

Q. 16. Of what year?

A. 1928.

Q. 17. Will you explain the circumstances under which you saw Mr. Johnson?

A. I was walking through the floor on some business and I seen Mr. Johnson and Mr. McManus coming through the floor and by the time that I came up with them Mr. McManus has left Mr. Johnson and I greeted Johnson and I had a chat with him and went along about my business.

Q. 18. In what factory was this?

A. The Crown Cork & Seal.

Q. 19. In what part of the factory?

A. In the spot department.

Q. 20. Have you any recollection as to how many spot machines the Crown Cork & Seal Company had in operation at that time?

A. I would say about 12 or 14.

Q. 21. When you were with the New Process Company in Brooklyn, New York, were they making center spot [fol. 472] crowns?

A. We made some, yes, sir.

Q. 22. What was the center spot, what material?

A. Tin, tin-foil.

Q. 23. How was that tin-foil attached to the cork?

A. It was backed up with paper and then had an adhesive underneath. They would drop some liquid on the cork part of the crown and then we would cut the spot on there and run it through the drier and it would stick.

Q. 24. Did your work bring you in any way in a position to observe the operation of the machines that were making these spots?

A. Yes, sir, at that time I had charge of that department.

Q. 25. What is your knowledge with respect to the efficiency of the machine?

A. It was very poor.

Q. 26. What do you mean by poor, what was the trouble?

A. I do not think that it paid us to operate that way.

Q. 27. What do you mean it did not pay you?

A. The production was very slow and a lot of them went off centers.

Q. 28. What do you mean by slow?

A. In the first place we would run about 50 a minute and out of that a good many were discarded, picked out on account of spots going off center, shifting to one side.

Q. 29. Were any efforts made while you were with the New Process Company to perfect this machine and method?

A. No, it seemed after a time, I should say about 1926 we seemed to stop completely on it and did not make any more of them.

Q. 30. Before 1926 did you do anything to try and over- [fol. 473] come these difficulties?

A. No, we tried our best to operate that machine that way but we could not seem to make it go very well.

Q. 31. Did you have any mechanics working on the machine?

A. Well, I am a mechanic myself by trade and I had other assistants helping there.

Q. 32. Did you work on the machine and try to make it work better?

A. I did, personally.

Cross-examination.

By Mr. Warland:

X Q. 33. You say you worked in the plant of the Crown Cork & Seal Company in Baltimore?

A. I did.

X Q. 34. Which plant were you in?

A. The assembly department.

X Q. 35. Don't they have a lot of factories and buildings down there?

A. They do.

X Q. 36. What building were you in?

A. In the main building I would call it.

X Q. 37. That is where the assembling machines are?

A. Yes.

X Q. 38. You say you saw Mr. Johnson there on April or May of 1928?

A. I did.

X Q. 39. And did you talk to him?

A. Yes.

X Q. 40. What was he doing, trying to sell machines?

A. I don't know.

X Q. 41. How do you know it was in 1928 that you saw him?

A. Because that is the time I went there.

X Q. 42. When did you go there?

A. 1928.

X Q. 43. You had been there how long before you saw Johnson?

A. It was a short time

X Q. 44. What do you call a short time?

A. It might have been a month or month and a half.

X Q. 45. Do you remember what month you went there?

[fol. 474] A. Either February or the first part of March.

X Q. 46. Which was it, February or March?

A. I cannot say exactly but I think it was February, the last part.

X Q. 47. You cannot say exactly whether you saw Johnson in April or May, can you?

A. I seen him in that time.

X Q. 48. How do you know it was April or how do you know it was May, which was it?

A. I did not know anything like this was coming along and I did not take no date.

X Q. 49. You made no memorandum at the time at all?

A. No.

X Q. 50. And you have no written memorandum to refresh your recollection?

A. No, but I am positive that I saw him there.

X Q. 51. That is your memory, isn't it?

A. It is not memory, I am sure of it.

X Q. 52. What was your position with the New Process Cork Company?

A. I had charge of taking care of the machines, of production.

X Q. 53. What do you mean by taking charge of the machines, what did you do?

A. If a machine were out of order we seen to it that they were attended to.

X Q. 54. You were just employed as a regular mechanic to see that the parts of the machine worked properly?

A. Maintenance man, that is it.

X Q. 55. You had nothing to do with making new parts or the improvement on old parts?

A. No.

X Q. 56. You say you saw some caps made at the New Process?

A. Yes.

X Q. 57. The only kind you saw were the tin centers, is that right?

A. Yes, sir.

[fol. 475] X Q. 58. When did you first go to work with the New Process?

A. In 1923.

Redirect examination.

By Mr. Scull:

R. D. Q. 59. You say you worked in 1928 when you first went down to the Crown Cork & Seal Company in the assembly department?

A. Yes, sir.

R. D. Q. 60. That is the department where the machines are for putting the cork disc into the crown?

A. Exactly.

R. D. Q. 61. Just where was that department in relation to the spotting machine department, how far is the spotting machine department from the assembly machine department?

A. At that time it was no more than about 25 feet, 25 or 30 feet.

R. D. Q. 62. On the same floor?

A. On the same floor.

Bertalin Szavo, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside, Mr. Szavo, where do you live?

A. I live in Maryland, in Baltimore.

Q. 2. You are employed by the Crown Cork & Seal Company at its Baltimore plant?

A. Yes, ma'am.

Q. 3. What are your duties there?

A. I carry assembling department, crown department.

Q. 4. In the crown assembling department?

A. Crown assembling department.

[fol. 476] Q. 5. How long have you worked in Baltimore at the plant of the Crown Cork & Seal Company?

A. I work 1928 to——

Q. 6. To now?

A. To now. By January 12 to now, I go down to Baltimore in 1928, January 12, up to now.

Q. 7. You say you went there in January, 1928?

A. Yes.

Q. 8. Before you went to Baltimore, where did you work?

A. I work at New Process Company.

Q. 9. Where was the New Process Cork Company located?

A. It is Brooklyn, 35th Street.

Q. 10. How long did you work at the New Process Cork Company?

A. I work from 1921, September in 1921, to 1928, up to the time when I left to go to Baltimore.

Q. 11. From 1921 to 1928 in the New Process Cork Company?

A. Yes.

Q. 12. Before you went to the New Process Cork Company in 1921, where did you work?

A. I work Ferdinand Gutmann Crown Company.

Q. 13. In Brooklyn, New York?

A. In Brooklyn, New York.

Q. 14. Now, while you were with the Ferdinand Gutmann Company, did you do any work in connection with center spot crowns?

A. Yes, sir.

Mr. Warland: I object to that. We haven't given any evidence prior to 1924.

Mr. Darby: This is contradictory of your testimony.

Q. 15. Just what did you do at the plant of the Ferdinand Gutmann Company?

A. I did the same thing what I do now, carried assembling machine.

Q. 16. What did you do in connection with center spot crowns, explain it briefly?

[fol. 477] A. Well, 1920, when business was very slow and we had not much to do, by summer time a couple of weeks I got an order from the foreman, Mr. Rasmussen, to try and make center spot, that I try, I do it on one machine for assembling department in the machine shop, and we will try it on one machine to make it into a spot. I used then for bakelite or ordinary paper like newspaper ribbon. We put it on and we try and coat it, and stick it in in some way.

Q. 17. What did you use to try to stick it on the cork?

A. First of all we try what is called silicate of soda look like.

Q. 18. How do you know it is silicate of soda?

A. Because it has got it on the bottle, and I know what it is long time ago because I seen that before.

Q. 19. Had you ever worked with silicate of soda before that?

A. I never worked at it, I see it and I know what purpose it is used for, sticking.

Q. 20. What did you do with the silicate of soda, where did you put it?

A. I try putting them up for a paper.

Q. 21. Put the silicate of soda on the paper?

A. Like smearing it on, and I find it dried out and come out dusty after.

Q. 22. How did you get this silicate of soda wet to make it stick?

A. Well, I try it on a piece of rag, I wet it, I don't ask nobody, and when it get cold it don't stick, it get dusty after while.

Q. 23. You wet the paper with a rag?

A. I wet the paper with a rag.

Q. 24. Well, how long did you try to make these center spot crowns?

A. I think about six or seven weeks, I don't know exactly.

[fol. 478] Q. 25. Did you have any success?

A. No.

Q. 26. Well, now, who told you to start this work?

A. Well, the machine shop foreman who had charge of the whole department.

Q. 27. And who told you how to do it?

A. Mr. Rasmussen; he is my boss.

Q. 28. And you went on for a few weeks and then what happened?

A. We stopped off. Sometime he would give me some other job.

Q. 29. Who told you to stop?

A. Mr. Rasmussen gives me another job, and we will never do no more, we stopped it.

Q. 30. And that was the end of the experiment?

A. That was the end of the experiment.

Cross-examination.

By Mr. Warland:

X Q. 31. Did you ever take out any patents yourself for any inventions you made?

A. Yes, I invented them.

X Q. 32. What did you invent and take out a patent on?

A. A feed for cork for assembling machinery.

X Q. 33. When was it you say you saw Gutmann try to make center spots?

A. 1920.

X Q. 34. Where were you working then. At Gutmann's?

A. Yes.

X Q. 35. Where had you been working?

A. International Crown Cork Company.

X Q. 36. Then, did you work for the New Process?

A. After I worked for the New Process.

X Q. 37. What was the New Process making at that time —was the New Process making any center spot crowns when you were with them?

A. Yes.

X Q. 38. When did you go to work for the New Process?

A. Well, I cannot hear so very good.

[fol. 479] X Q. 39. I say, when did you go to work for the New Process Company, what date?

A. What date I go to work?

X Q. 40. Yes, for the New Process.

A. September of 1921.

X Q. 41. How are you sure that it was 1921?

A. How am I sure?

X Q. 42. Yes.

A. Because I know the date when I go to start there.

X Q. 43. Why did you leave the Gutmann Company?

A. Well, I go and leave the place because I am trying myself to make a better position.

X Q. 44. Did you get a better position with the New Process than you had with Gutmann?

A. I just changed.

X Q. 45. Did you get any more money with the New Process than you did with Gutmann?

A. About the same.

X Q. 46. Did you have any trouble with Gutmann, that you left?

A. No.

X Q. 47. Gutmann were not selling any center spots in 1921, when you were there, were they?

A. No.

X Q. 48. All you know is that you saw Mr. Rasmussen trying to experiment to make a few?

A. Yes, ma'am.

X Q. 49. And you don't know what he stuck them on with?

A. No, ma'am.

X Q. 50. Do you know what kind of a machine he used?

A. A regular old style Johnson machine with a feed paper attachment.

X Q. 51. And you are now working for the Crown Cork & Seal Company?

A. Yes.

X Q. 52. Who did you talk with before you came here as a witness? Did you talk with Mr. Darby?

A. Yes, ma'am.

[fol. 480] X Q. 53. What did he say about dates, anything about 1921?

A. He did not say nothing about it, I know that. When I left Mr. Gutmann's place, I know when I left positive and everything. I remember that pretty good.

X Q. 54. When you say Mr. Rasmussen was trying to put center spots on, how was he trying?

A. He was trying to put on the middle of the cork, but it never came out, it would go to one side or the other.

X Q. 55. He just wanted to see if center spots could be made, is that right?

A. Yes, that is right.

X Q. 56. And he worked on this how long, according to your recollection, was it a week or two?

A. I think I worked about six or seven weeks; I am not sure about it.

X Q. 57. You are not very sure about anything?

A. About six or seven weeks.

X Q. 58. But I say, you are not very sure about anything?

A. No.

GEORGE GOEBEL, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside?

A. Baltimore, Maryland.

Q. 2. Where are you employed?

A. Crown Cork & Seal, Baltimore.

Q. 3. How long have you been employed by the Crown Cork & Seal Company and its predecessor in business?

A. Since 1914, July.

[fol. 481] Q. 4. What are your duties with the Crown Cork & Seal Company?

A. Building engineer on all production machinery, building and acquisition and also maintenance of production machines.

Q. 5. In other words, you are employed in an engineering capacity?

A. Yes, sir.

Q. 6. Will you please give us briefly a history of your experience?

A. I left school at the age of twenty-two in 1902, Berlin, where I studied engineering. I came to the United States in 1904, took a position with the Comptograph Adding Machine Company in Chicago as tool draftsman and some more drawing work for I guess about two years. Thereafter I came with the Cord Manufacturing Company, located in Chicago at that time, as tool designer and in general charge of the tool department, to assist the superintendent. Thereafter I became general superintendent for Diamonds Manufacturing Company in Detroit, manufacturing automobile parts. In 1914 I took a position with the Crown Cork & Seal Company as engineer building machinery, maintaining, as supervisor of production of equipment, that was the title then.

Q. 7. To what extent has your work with the Crown Cork & Seal Company since 1915 brought you in contact with the manufacture of center spot crowns?

A. I have been brought in contact, constant contact with it, from early 1915.

Q. 8. Are you quite familiar with the machinery that has been employed by the Crown Cork & Seal Company for

the manufacture of center spot crowns since that time to the present time?

A. I am.

Q. 9. By the way, did you have any knowledge of any [fol. 482] machinery that came to the Crown Cork & Seal Company within the last few years from a company known as the Crown Cap Manufacturing Company of Brooklyn?

A. There is a machine that came to Baltimore, a Johnson crown assembling machine, so equipped that you can run spots on it also, it is a duplex machine.

Q. 10. Did you personally see that machine?

A. I saw the machine.

Q. 11. Has that machine ever been used by the Crown Cork & Seal Company?

A. No, it has not.

Q. 12. When you first went with the Crown Cork & Seal Company was it manufacturing center spot crowns?

A. No.

Q. 13. How long after you went there, approximately, did they begin the manufacture of center spot crowns?

A. In 1915 we entertained the idea of building a machine to apply center spots to crowns. That was probably in the fall of 1915, if I do not mistake.

Q. 14. Had you seen any center spot crowns on the market at that time, or were any called to your attention?

A. Yes, the tuck-in type, that is, such as made on the Stewart machine.

Q. 15. Did you have anything to do with the problem of getting the Crown Cork & Seal Company started with the manufacture of center spot crowns?

A. Yes, the problem was put up to me.

Q. 16. Just what did you do?

A. We put our draftsman to work. I sketched up the principle first, that is, the principle we had in mind at that time, to apply center spots.

Q. 17. How long a period of experimentation did it take to get started around that time?

A. Well, I couldn't remember just how long it took to ex- [fol. 483] periment, but I could tell you just what happened in the building of machines.

Q. 18. Go right ahead in your own way.

A. We established a fundamental on which to build the machine which was to pull a web, that is the two separate

strips of course loosely united, over a punch and die underneath that die was located a movable slide. This slide had a pocket about the diameter of the spot, slightly larger and when this disc was punched it was dropped into that pocket. Now then, at that moment the slide would withdraw back to its original position and in alignment with a heated suction punch. The disc would then be lifted by suction on to this heated punch and the gutta percha would soften and then it would come down and deposit that soft disc on to the shell which was located underneath.

Q. 19. And how did you come to start the use of gutta percha, do you know who suggested that?

A. Well, it was a matter of collaboration between the chemical laboratory and myself. We obtained some gutta percha and tried it and we found that it was the best way to control the adhesive, by having the tissue and cutting it of the same diameter. Before that we tried also some other adhesives but not extensively.

Q. 20. With whom did you work in the chemical laboratory?

A. At that time it was a Mr. Daly the chemist and shortly thereafter it was Warth.

Q. 21. Now, you made this drawing for me or you explained how the draftsman should make it. Will you take this drawing and just explain the sequence of steps in the operation of that machine which you say was developed under your supervision?

[fol. 484] A. Well, this represents the aluminum foil, that blue strip, and this is gutta percha (indicating) and they were fed by two sets of feed rolls, to the die. This is the die (indicating). Underneath there is a grey portion, that is the slide which has a pocket underneath and this disc is punched and dropped into that pocket (indicating). There was a small knockout there to keep it away from that space, but that is not shown on here; it was too small.

Now, in this next step, this slide was moved to a position alongside of the cutting punch where there is a heated suction punch and with the heat supplied by electricity and at that point suction was applied, which was done by a piston mounted on the crankshaft of the machine itself. That would suck the disc up against here (indicating) and this slide would withdraw—here is the suction that shows the disc, Fig. 3 (indicating) in a position to be heated.

Now, at 4, Fig. 4, this slide shows the original position with that pocket again in alignment with this cutting punch to receive another disc. While the heated punch went down to deposit that disc simultaneously when the cutting punch punched it into the pocket.

5 shows the application of the disc into the shell. As soon as the disc was delivered on to the cushion disc, the pressure was released. That release was due to a port of air which rushed in and the disc adhered to the cork and here, at No. 6, it shows the discharge to the chute down to the basket or box.

Mr. Darby: I offer in evidence the chart which has been described by the witness.

(Marked Plaintiff's Exhibit 43 in evidence.)

[fol. 485] Q. 22. Now, as I understand your description, after the slide moves to the position shown in Fig. 2 the suction lifts the two layers of gutta percha and foil up against this suction plunger and heats the two discs while the slide is withdrawing, is that correct?

A. That is correct.

Q. 23. Then in Fig. 6, after the two discs are dropped on to the cork they are immediately ejected?

A. Immediately ejected, that is right.

Q. 24. Now, who designed this machine?

A. It was designed under my supervision.

Q. 25. I hand you a memorandum and two attached photographs; will you please read the memorandum and state whether or not you recognize the same?

A. That is a memorandum from the engineering department signed by W. F. Walker who was at that time chief draftsman or assistant chief draftsman.

Q. 26. Will you please read it and state whether what it describes is accurate?

A. "The following is a treatise"——

Q. 27. I do not mean read it aloud, will you please read it for your own benefit?

A. Oh. (Reading paper.) That is correct.

Q. 28. Will you look at the photographs and state what they show?

A. That is the machine, identical machine that is in question right now.

Q. 29. Those photographs illustrate the machine which you began to use, and on which you manufactured center spot crowns for some time in the manner you have described?

A. Yes, sir, that is the machine.

Q. 30. And these are like Exhibit 43, these photographs?

A. The principle, yes.

Mr. Darby: I offer in evidence the memorandum identified by the witness as Plaintiff's Exhibit 44.

[fol. 486] (Marked Plaintiff's Exhibit 44 in evidence.)

Mr. Darby: The photographs as Plaintiff's Exhibit 45.

(Marked Plaintiff's Exhibit 45 in evidence.)

Q. 31. Do you recall how many of these machines of Exhibits 44 and 45 you built and used?

A. Yes, three.

Q. 32. Roughly, how long did you use them, without any particular reference to dates?

A. We used them for a number of years until we built something better.

Q. 33. During the period of use of these machines to what extent were you personally familiar with their operation and the service they were giving?

A. I was in constant attention with the machines, because they gave us a great deal of trouble, that is, they were slow.

Q. 34. I believe you told me these were known as the slide machines.

A. Known as the slide machines, yes.

Q. 35. They take that name from this movable slide that moved back and forth?

A. That movable slide, yes.

Q. 36. So you were perfectly familiar with the operation and service of these slide machines during the period they were in use?

A. Yes, I surely am.

Q. 37. What is your personal knowledge in that respect?

A. Naturally when I build a piece of machinery it is up to me to get it going; we always have to do that, take out the bugs, and this machine was no exception, I had to do the same thing on that. And the difficulties were that the disc did not always fall centrally in that slide, the pocket had [fol. 487] to be slightly larger than the disc, and it would fall one way or the other. It would pick up the crown from

the heating punch and deposit it off center on to the cushioned disc, and that of course while it was still warm, so we had a couple of girls sitting there to take the spots with their thumb and place them over in the middle. That naturally would retard production and was not very satisfactory.

Q. 38. With respect to this operation of stuffing the piece of foil and piece of gutta percha out of the pocket on to the heating punch to be heated, did this operation cause any trouble?

A. Well, as I said it may not always pick it up in alignment with the punch. The machine was not a crank motion, I forgot to mention that, it was a cam motion, that is, there was a dwell when the punch was up and a dwell when the punch was down.

Q. 39. You had the punch up to give it time to heat the spot?

A. To give it time for the slide to get in position, and also get the suction to apply. And then the slide had to get out of the way before the punch went down. And the lower dwell was designed to have a slight rest. In order to deposit the disc and release the pressure, release the suction.

Q. 40. Have you any recollection as to the production you were able to get out of this machine over the period of use that it was in, the slide machine?

A. I know it wasn't very high. I am not, I can't just recollect the exact figures, you might get them out of the records that I am sure of, but it was not very high. It was probably about 50, the machine operated about 50 or 60 strokes a minute, I believe, something like that.

[fol. 488] Q. 41. How many spots would that mean applied in a minute?

A. That would probably be 50 or 60 spots a minute, something like that.

Q. 42. You never got any better out of these machines?

A. That is about all we got out of them.

Q. 43. Those were improved over this period of use, were they?

A. Yes, we did constantly work on them, and we made such improvements, and we continued experiments and improved them, but they were never entirely satisfactory I would say.

Q. 44. You spoke of working on it. Was there any particular expense in the maintenance of the machine?

A. Yes, the electrical heater went up quite often. The sliding movement gave us some trouble with maintenance. There was some maintenance connected with it, yes.

Q. 45. Now, I believe you said that some time later you did get something better, is that right?

A. Yes.

Q. 46. When you got this better machine just how much better was it?

A. The experiments indicated that it was quite a decided improvement; just to say in percentage I don't know, but I might say maybe two or three hundred per cent. better.

Q. 47. You stepped the speed up to what extent?

A. In the first experimental unit to about 250, I believe, or 275, which we gradually increased as we improved the machine.

Q. 48. Right at the start you jumped it up to 250?

A. Yes.

Q. 49. How much did you step it up to later?

A. The ultimate speed, that is, after we combined the two [fol. 489] materials, it was rather high, probably around 420, or something like that.

Q. 50. I hand you two photographs, Plaintiff's Exhibits 41 and 42. Will you state what they show?

A. They show the machine as it was used after the machine of the slide method. The machine itself I would say, the running gears and the bed and the dowels was one of our assembling machines, that is, a machine used at that time for assembling crown corks. We used a good many drawings of that machine to experiment on this spot machine?

Q. 51. How did you come to design this machine?

A. Which one, the spot machine or the assembling machine?

Q. 52. The one the photographs of which you have in your hand, and which you say succeeded the sliding machine?

A. Why, Dr. Warth furnished us with the idea. Of course, we were dissatisfied with what the old machine did, and he said, "You should apply heat to that cork when you deliver the spot, and perhaps afterwards another heater again, and work along that line and you will probably get somewhere," which we did.

Q. 53. Am I to understand what you did was the result of what Dr. Warth told you in the way of what he wanted?

A. That is what he told me.

Q. 54. Take these photographs and compare them with this machine which we have here (indicating) and state whether or not they illustrate the same?

A. Yes.

Q. 55. Will you please describe the machine and its mode of operation so far as it is embodied in this exhibit we have here?

[fol. 490] A. To give you a clear picture, this is just an improvised piece of steel on which the mechanism is mounted. The machine itself was much higher and had a hopper, and then had a large dial on this side here for cooling under pressure.

Q. 56. How much does the complete machine weigh?

A. About 3500 pounds. It is quite a heavy machine; on account of the speed it has to be heavy.

Q. 57. Now, go ahead and explain this.

A. Now, the shells were brought up by a hopper feed into this curved chute (indicating). They were taken away by a double set of finger movements. There is a heater here which imparts a certain amount of heat on to the cushion disc, but it goes underneath here. After that heat is imparted.

Q. 58. What is this piece of mechanism that applies the heat?

A. It is a gas heater that reciprocates and is operated by this yoke in here, attached on to this. (Indicating.) It is heated by gas. The earlier machines were heated by electricity. Now, the material is fed through here (indicating) to this channel.

Q. 59. The spot material——

A. Both the gutta percha and the tin-foil, they are put in through here (indicating), and are punched and fed through here, to this feed, and they are released here. (Indicating.) The crown, after the disc was applied, was fed further along to the post heater, and also heated by gas to impart more heat to the foil, and then into the dial where it cools under pressure, and was delivered to a conveyor belt where the girls pick out the imperfect crowns.

Q. 60. How close was this dial to the post heater in the [fol. 491] first machine?

A. Right here; you can see this bright spot (indicating), and on this bright spot, that is where the dial travels, so it is the distance from here to here (indicating), possibly seven or eight stations.

Q. 61. This dial shown at the left hand of the photograph, Plaintiff's Exhibit 41, is that what you mean?

A. Yes. Of course, this dial is large and has 96 plungers and was originally used in the crown assembling machine, but I did not want to make any change, or more changes than we had to, and so we kept the big dial on there so as to have a complete machine.

Q. 62. You say the first machines were electrically heated, but in any other respect did they differ from this machine so far as the operating mechanism is concerned?

A. They are identical, except that we had two ways of heating those cushion discs. In this case here we have a plunger to heat the cushion or waxed cork, the cork being waxed. We had to raise that often as the gutta percha stuck. We also used a long inverted high pressure gas heater that extended from here to here (indicating).

Q. 63. Just a hood?

A. Just a strip over here, yes.

Q. 64. A hood?

A. A hood.

Q. 65. So in some of the machines you preheated by plunger, and in other machines you preheated by the hood?

A. Yes, it would not stick to the wax cork.

Q. 66. You stated it would not stick to the waxed cork?

A. No, we had to do away with the wax or else it would not stick.

Mr. Darby: I offer the machine in evidence identified by the witness.

[fol. 492] Mr. Warland: I object to this machine, if the Court please, on the ground that it has no bearing on the controversy.

Mr. Darby: We are going to show when they started this; it will be identified with later witnesses.

The Court: I cannot tell what he is going to do; he says he is going to connect it up. If he does not connect it up, I won't pay any attention to it.

(Marked Plaintiff's Exhibit 46 in evidence.)

Q. 67. By the way, do you know Mr. John A. Johnson of the John A. Johnson Machine Works?

A. I do.

Q. 68. Brooklyn, New York?

A. I do.

Q. 69. How long have you known him?

A. The first time I met Mr. Johnson was in around, I should say early 1918 or so, 19—I forget on what occasion it was; it might have been at a convention, I think that is what it was, one of the bottler's conventions.

Q. 70. You heard the testimony this morning, I believe, of Mr. McManus and Mr. Volpe?

A. I have.

Q. 71. Are you familiar in any way with the circumstances with respect to which they testified?

A. Yes.

Q. 72. About Mr. Johnson's visit to your plant?

A. Yes. I think I was at my desk when a department foreman came up to me, the foreman of the crown assembly department, and told me that there was a strange man downstairs looking over those spot machines. "Is that so?" "Yes." I said, "How did he get in?" "Why," [fol. 493] he said, "Mr. McManus brought him there, and he left him there, and now he is nosing around those spot machines." "Oh, well, if Mr. McManus brought him in, there isn't anything I can do, just be sure you remember what you saw; that is about all."

Q. 73. What I meant, did you meet Mr. Johnson at that time?

A. No, I did not. I saw him, I did not meet him. What I meant to say was, I did not speak to him, but I did see him later on, I believe it was with Mr. McManus.

Q. 74. Did you see him while he was in the spot assembly department?

A. No, I did not.

Q. 75. What time was this, have you any way of fixing the date?

A. From, it being a remarkable incident, naturally you make a pretty sharp me-tal memorandum, and that is what I did at that time. That was in 1928, I think it was in March or early in April, I do not recollect the date.

Q. 76. You simply mean that Mr. Johnson was down there around that time?

A. Yes, sir.

Q. 77. When you first built these electrical machines you say that preceded the gas machine, what results did you obtain first in the way of speed?

A. I believe the first speed that we obtained was around 275, something like that. It might have been a little bit better, might be a little bit less, I do not recollect, but it was quite an improvement over what we had before.

Q. 78. Now, have you checked your records to find the early drawings you have available at this time of your machines, that is, the new machines that succeeded the slide machines?

A. Yes, we have looked over the records.

Q. 79. I hand you a number of blueprints. Will you [fol. 494] please examine the same and state what they cover?

A. Yes.

Q. 80. Take them up one by one, there are only a few there, aren't there? Identify them by number.

A. Now, as I said before, the machine was built using a crown assembling machine known as a Goebel crown assembler as a base, and these drawings represent merely the changes we had to make to obtain this mechanism. We have not got the drawings here, but the machine itself, the assembling machine, there is a large dial and legs, and these drawings represent the mechanism that it was necessary to alter.

Q. 81. Now, what particular part of the spot mechanism does that group of drawings I have handed you relate to?

A. It relates to the spotting attachment itself.

Q. 82. To what part of the spotting attachment do that group of drawings relate, look them over.

A. Well, the main bracket for instance which had to be changed and made new——

Q. 83. What drawing number is that?

A. That is drawing No. 72,151 which shows a cast-iron bracket whereon that whole mechanism is fastened to.

Q. 84. What is the date of that drawing?

A. That date is October 4, 1926.

Q. 85. Do you know whether or not the drawing was made at or about that time?

A. The drawing was finished at that time when it was dated but the parts were made earlier. I mean to say the

experimental machine was made practically without drawings at all, just freehand sketches.

Q. 86. This is when you standardized on the commercial machine?

A. Yes, we do not make these drawings, not until we knew [fol. 495] we were going to make no more changes.

Q. 87. Will you look at the other drawings and state generally to what parts of the spot attachments they relate and identify them by number.

A. Well, I have here drawing 72,154 which is an eccentric and that was necessary in order to get a greater stroke on the cutting punch. The eccentric used on that same spot, but did not have to have that excessive stroke.

Q. 88. What is the date?

A. That is also 1926, December 1st, 1926. These are all record drawings, I mean drawings made after the experiment was completed.

Here is a drawing which is also one of the principal parts of the spot attachment.

Q. 89. The number please?

A. 72,155.

Q. 90. And the date?

A. November 13, 1926. This drawing shows the cutter head which is a self-contained mechanism, interchangeable, which holds the cutting punch at the cutting die. I might say it is a suppressed die. That drawing was redrawn with changes. That happens. When we make a change later on, if it is too much of a job to rub it out, we used to make a new drawing and then we will take the old drawing and mark it superseded, but we never throw it away, we keep it. There is an example right here.

Here is another one, that is a very important part on the machine.

Q. 91. What is the number, please?

A. 72,161.

Q. 92. And the date?

A. November 8, 1926. It is a centralizer. That is the mechanism operated by the cutting punch mechanism, a lowering circular bushing into the shell to centralize it so [fol. 496] the spot would be received in the middle. This was also superseded and it has a "superseded" stamp on it and a new drawing was made with probably important changes on it.

Now, we have here a drawing——

Q. 93. Number please?

A. 72,168 which is the operating yoke for that centralizer.

Q. 94. And you put another one down there. What is the number of that?

A. This is 72,162, it is a guide block for that centralizer, the strip guide we call it.

Q. 95. Explain that please.

A. Here is drawing 72,219 which is a punch operating yoke assembly.

Q. 96. What is the date of that?

A. November, 1926. This mechanism which is hooked on to the punch on the top and eccentric yoke on the bottom, inside of the machine.

Here is drawing No. 72,216 "Feed operating lever lower." This is the lever that is used in connection with moving the web or foil over the die and operates a ratchet.

Q. 97. Will you just examine the rest of the drawings you have there and state whether or not they all relate to the spotting mechanism?

A. I have seen all this because I prepared them.

Q. 98. You grouped these drawings as they are there, in that envelope?

A. Yes, sir, absolutely.

Q. 99. Will you return them to the envelope, please.

A. Yes. (Witness complies.)

Mr. Darby: I offer this group of blueprints identified by the witness in evidence, 11 blueprints in all.

Mr. Warland: I make the same objection, your Honor, that they are incompetent, irrelevant and immaterial to [fol. 497] the issues here.

Mr. Darby: These blueprints are offered, your Honor, to establish our record date for records in our plant. The first drawing I think we have of our machine, and it is important that we establish our dates.

The Court: All right, I will take it.

(Marked Plaintiff's Exhibit 47 in evidence.)

Q. 100. I hand you another group of drawings numbered 72,275, 72,172, 72,173, 72,160 and 72,157. Will you please examine them and see whether they are typical drawings of the preheater mechanism on the same machine, and that the drawings were made on the dates given thereon?

A. Yes, they are all relating to the preheating parts.

There is two different kinds, one for the strip, the other one is the round spot heater.

Mr. Darby: I offer the drawings identified by the witness in evidence.

Mr. Warland: I make the same objection.

The Court: The same ruling. They are received.

(Marked Plaintiff's Exhibit 48 in evidence.)

Q. 101. Referring to this drawing 72,275, Plaintiff's Exhibit 48, does that indicate the hood type of preheater to which you referred?

A. It does.

Q. 102. The other drawings show the plunger type of preheater that is on the machine you have identified?

A. Yes.

Q. 103. I hand you another group of drawings, 72,158, [fol. 498] 72,184 and 72,211. State whether or not those are drawings with reference to the post heater of the plunger following the punch?

A. This is what we call the sealing heater. I may add that on the assembling machine which we have used to create this machine, there is a mechanism on there which we call a bumper. Now, that bumper was placed on there to break down the knots in natural cork discs after they were inserted, we had the mechanism on there, the up-and-down movement, and all we had to do for installing the heaters was to put a hose on there and operate the same way, and we had a sealing heater.

Q. 104. That is the reason you had only a few drawings?

A. We had only a few drawings because all the rest of the parts are already on the machine.

Q. 105. These drawings which you have identified were made on the dates given on the drawings?

A. Oh, yes, they were, at the time they were drawn up; that is usually our system, to state them, put the man's name, the man's initials on there that does it, and the date that he does it.

Mr. Darby: I offer in evidence the drawings just identified by the witness.

Mr. Warland: I make the same objection.

The Court: I will receive them. He says he is going to connect them up.

(Marked Plaintiff's Exhibit 49 in evidence.)

Q. 106. I hand you what is known as a request and authorization for an appropriation. Will you state what you [fol. 499] can as to that?

A. Appropriation 91,036, to cover money available for three aluminum spot to be applied to crown assembling machines as per blueprints.

Q. 107. Please take the original instead of that.

A. They are both identical.

Q. 108. You had a photostatic copy in your hand.

A. Under explanation it says, "We have three assembling machines equipped at present. The above will give us a total of six that are necessary for the Anheuser-Busch trade." It is signed by myself.

Q. 109. Do you have any recollection with reference to this particular appropriation, the one you have just read?

A. Yes.

Q. 110. Just state what your recollection is.

A. My recollection is that we received a serious complaint from the Anheuser-Busch people on account of a corky taste.

Q. 111. That was from natural cork crowns?

A. Natural cork, yes, and as a result of that Dr. Warth and myself, we were asked to come down to St. Louis to see what can be done to eliminate that corky taste, which was especially bad in cereal beverages because near-beer is very sensitive. We had a meeting with Mr. Adolphus Busch, his two sons and Mr. Anheuser, and Mr. Augustus Busch, and he says, "Why don't you people buy your cork the way that I buy my hops, over in Bavaria and Austria, and go to Spain and pick out your cork very carefully over there, pick out your cork fields?" And Dr. Warth explained to him that cork doesn't grow that way, that it comes in any old way and it has to be assorted thereafter. Then Dr. Warth——

Q. 112. Without going too much into the details of this [fol. 500] conversation, tell us what related to this incident?

A. Well, we finally sold him the idea to spot his crowns with a metal spot.

Q. 113. That is, crowns he already had?

A. He had three carloads down there, and we had two carloads in the plant.

Q. 114. Anheuser-Busch was using quite a volume of natural cork crowns then in 1926?

A. They did not use such an awful lot, but they did use quite a number.

Q. 115. You had a five-carload order at that time, did you not?

A. Five-carloads were on hand, yes, three there and two at our plant.

Q. 116. That is how many corks?

A. 30,000 gross to a carload.

Q. 117. That is 150,000 gross of crowns?

A. 150,000 gross of crowns.

Q. 118. So that was this appropriation you have identified, did that relate to that incident?

A. That related to that incident. We felt we ought to build at least three more machines to take care of this demand. We should have really six more at that time, but you can build three machines much faster than you can build six, and I figured if we built three and got them going we could keep on adding to them.

Q. 119. Now, did you go ahead and build machines that were covered by this appropriation?

A. They were built, yes.

Mr. Darby: I offer in evidence the appropriation record identified by the witness.

(Marked Plaintiff's Exhibit 50 in evidence.)

[fol. 501] Q. 120. Now, I note on this appropriation it states, "We have three re-assembling machines equipped at present which will give us a total of six that were necessary for the Anheuser-Busch trade." What was the construction of those three machines that were in use at that time, to which that appropriation refers?

A. They were identical to what you had over here (indicating) except they were heated by electricity.

Q. 121. You are referring now to the machine Exhibit 46 of which Exhibits 41 and 42 are photographs?

A. Yes, sir.

Q. 122. Now, how long, roughly, so far as you can recall from your own recollection had those three machines been in use which are referred to in this appropriation and state what your recollection is?

A. I have never made it a practice to remember dates because I cannot possibly do it.

Q. 123. Had they been used for some time?

A. They had been used for some time, but the records somewhere ought to show when they were made and when they were put into the works.

Q. 124. I hand you a paper dated April 15, 1925, and I refer you to page 3 at the bottom of the page under the heading, "Obsolete and surplus in idle machinery and equipment," and particularly to the last line, "Three tinfoil machines—scrapped." Do you know what that refers to?

A. Yes.

Q. 125. What are they please?

A. Those are those three slide machines which were described earlier—a little while ago. April 15, 1925, those were the three slide machines.

Q. 126. Do you know whether or not they were scrapped [fol. 502] on or about the time of April 15, 1925?

A. Yes.

Mr. Darby: I offer the paper identified by the witness in evidence.

(Marked Plaintiff's Exhibit 51 in evidence.)

Q. 127. Now, up to the time that you went out to the Anheuser-Busch Company, how were you feeding this strip material through these three machines, the earlier machines, the ones referred to in the appropriation, Plaintiff's Exhibit 50?

A. We fed them as two separate webs, brought them together just shortly before the die came down.

Q. 128. Between these rollers shown in the machine, Exhibit 46?

A. Between the channel. There was no roll there, the rolls are on the opposite side to pull the skeleton after it had been operated on.

Q. 129. But they were brought close together at that point?

A. Yes.

Q. 130. And after you came back from Anheuser-Busch did you continue to feed the gutta percha tissue and the foil from separate rolls and bring them together down at the machine punch?

A. We did that for a few days and then the thing came up and Dr. Warth said, "Why don't you put them together

and put them in singly," which we did. I built a machine for that. We found it was very beneficial so far as production was concerned.

Q. 131. What kind of a machine did you build as a result of Dr. Warth's suggestion?

A. Well, it consisted of a table with four legs and a [fol. 503] mounting for the two materials, the foil and gutta percha, and a series of combining rolls and a rewinding stand which was operated by a foot pedal, the speed of which was controlled by a friction disc in a planetary fashion, by a small motor.

Q. 132. I hand you two photographs. Will you state what they show?

A. That is the machine, yes.

Q. 133. That is the machine that was used for bringing—combining the two strips in one roll?

A. Which we called the combining machine, yes, sir.

Mr. Darby: I offer in evidence this photograph identified by the witness.

The Court: When was that done?

The Witness: Right after I returned from Anheuser-Busch, it might have been a week after we returned.

The Court: What year was that?

The Witness: In 1926, in the Fall.

The Court: In the Fall of 1926?

The Witness: Yes.

Mr. Warland: I do not want to keep interposing objections, your Honor, but I do object to this photograph going in as being incompetent, irrelevant and immaterial.

The Court: You can have your objection noted but they say this is the way of proving the date. If it is, then, it is admissible. They can only show use at a certain time. If this photograph was taken at or about the time it is some evidence, of course.

(Marked Plaintiff's Exhibit 52 in evidence.)

[fol. 504] Q. 134. I hand you a paper, appropriation No. 91,092; will you state to what it refers?

A. It refers to this combining machine.

Q. 135. What is the date of the appropriation?

A. January 1st, 1927.

Q. 136. Is that your signature in the lower left-hand corner?

A. It is.

Q. 137. Was it applied at or about the time of the appropriation?

A. According to that appropriation it must have been although it might have been the machine was finished when we took out the appropriation.

The Court: Did you sign your name at about that time?

The Witness: About the time, yes.

Mr. Darby: I offer in evidence the appropriation identified by the witness.

Mr. Warland: The same objection.

The Court: Same ruling. It will be received.

(Marked Plaintiff's Exhibit 53 in evidence.)

Q. 138. How did this machine authorized by Plaintiff's Exhibit 53 compare with the photograph Plaintiff's Exhibit 52?

A. Identical.

Q. 139. This was the appropriation for the machine corresponding identically to the machine in the photograph?

A. Yes.

Q. 140. Did you later build identical machines?

A. Yes, I believe we built two more.

Q. 141. Did you ever make any change in them so far as the operation goes?

A. Not in those.

Q. 142. I hand you another appropriation. What is the date and number of that?

A. 91,133.

[fol. 505] Q. 143. The date?

A. Dated February 24, 1927. It covers to build another machine of the same type. It says here, Cover building of additional gutta percha combined machine identical to the one built on appropriation 91,092.

Q. 144. Did you personally have a part in the building of these two machines covered by these appropriations?

A. I furnished the sketches.

Q. 145. In other words, they were of your design?

A. My design.

Mr. Darby: I offer appropriation 91,133 in evidence.
Mr. Warland: The same objection.
The Court: Same ruling.

(Marked Plaintiff's Exhibit 54 in evidence.)

Q. 146. What results, if any, did you find from the adoption of this suggestion of Dr. Warth to pre-combine the foil and gutta percha?

A. We were able to step up production, that is, we were able to increase the speed of the machines.

Q. 147. To what extent?

A. I believe we operated them at the rate of 425, or something like that, a minute.

Q. 148. When? After you adopted that?

A. After we combined them.

Q. 149. Before that, what rate had you gotten?

A. About 365 or '70. As a matter of fact, we changed that right along, it wasn't only a matter of changing the motor.

Q. 150. Can you explain why you were able to step up production?

A. With two separate webs going in, and gutta percha is a peculiar product to work with, it gets damaged on the [fol. 506] side of the roll, and then when it unwinds it will start to tear, and it will tear in a spiral fashion until it is separated.

Q. 151. Around the edge?

A. Yes. And then we have to stop the machine and undo all that until the sound part starts again, and in the meantime the machine might get overheated, and by the time the machine gets started again there would be all that time lost which is eliminated by combining the two.

Q. 152. Is that the way you are now using the method in Baltimore, with the two combined?

A. We are still combining.

Q. 153. You still use some of these combining machines?

A. We use some of these combining machines, but the majority is already combined, calendered on.

Q. 154. At some other plant?

A. Yes, that is, on the tin-foil; I do not think we have ever been able to get tin-foil calendered on successfully, that is the reason.

Q. 155. Do you know why?

A. I have no idea.

Q. 156. Just by way of explanation, taking, for example, this appropriation record, Plaintiff's Exhibit 53, will you explain what the figures on the back mean?

A. Those figures on the back represent the time and material, supplied against it at the time they were built. That is our custom——

Q. 157. In other words, your practice is to keep a record of your expenses under the appropriation right on the back of the appropriation record?

A. Yes, so we can keep somewhere near within the amount of the appropriation asked for.

Q. 158. Was it your practice to receive copies of these [fol. 507] appropriations in your capacity as engineer in the plant?

A. We originated the appropriation in our department, and we kept a copy in there, and all the posting was done in our department.

Q. 159. So you personally know of all these appropriations?

A. Oh, yes.

Q. 160. Have you made a careful search at my request for any earlier drawings than these drawings relating to the spotting attachment features or spotting features in machines than these drawings which have been offered in evidence as Plaintiff's Exhibits 47, 48 and 49?

A. I have. Most were, as I said to you before, temporary pencil drawings, or most of them were freehand sketches. They were all done away with at the time of consolidation; we needed room, and most of that stuff was just dumped out.

Q. 161. As I understand, you might find a few additional drawings in addition to these, but no earlier ones?

A. No, I do not believe we would find very many earlier ones; we might, I do not know.

Q. 162. Did you make a search as I requested you to find those?

A. I did.

Q. 163. Have you any personal knowledge as to why sketches and drawings that were made earlier are not available?

A. Yes. All these freehand sketches and drawings were,

after the work was done, filed and attached to the order and filed.

Q. 164. Where were they kept?

A. In my department, engineering. I had five file cases full of records of that sort, but we ran short of room, and these were all old records, and they were just simply thrown away.

[fol. 508] Q. 165. How long ago did this happen?

A. That happened in 1928, 1927 or 1928, I should say.

Q. 166. What was the occasion? Do you have any recollection at all on that point?

A. I do. We were short of room in the engineering department, and also since there were other employees coming in, they wanted also file cases, and we did not have them. So there were three of mine emptied and they were turned over to somebody else.

Q. 167. Did those drawings have any practical bearing on your operating equipment in your plant at that time?

A. No, they were since then drawn up, all drawn up.

Q. 168. They were superseded drawings?

A. They were superseded drawings, they had no value except it might be in this case, but we did not know.

Q. 169. I hand you a paper. Will you please read the same and state what your recollection is, if any, as to it.

A. Yes, I recall this.

Q. 170. Do you recall receiving this letter from Dr. Warth or Mr. Warth at the time or about the time it is dated?

A. I am sure that it was received by me because I do recall that he did bring in that material.

Q. 171. I notice in the second sentence of this letter, "I spoke to you the other day about a product which is being made by the E. I. duPont Company which is suited for adhesive purposes,"—the letter being dated incidentally November 19, 1926— "This particular material is nitrocellulose and gum base and is already thinned to a consistency that makes it easy to apply to paper or other material." Do you recall what Warth was referring to in his letter?

[fol. 509] A. He was referring to a material that he received which was, according to his mind, more adapted for thermoplastics of the cellulose type than he had before.

Q. 172. Had Warth had any discussions with you at or about this time about that?

A. He did.

Q. 173. What was he driving at?

A. He had a man working on that, working with nitrocellulose material at that time, experimentally. On numerous occasions he brought us material for us to run in our machines.

Q. 174. On what machines?

A. Spot machines.

Q. 175. Coated on what?

A. On aluminum or tin.

Q. 176. Some kind of a metal foil?

A. Yes.

Q. 177. And Dr. Warth would bring you these samples to have you run them on the machines?

A. We would take them out to the man to have them run on the machines. He always brought them to me because I used to go out on the floor with him, or one of his assistants, to witness the run.

Q. 178. Did you at that time know that Dr. Warth was running on nitrocellulose base adhesive?

A. I am almost certain—I could not tell for sure that it was nitrocellulose, but it had all the appearance of it, it had the smell like ethyl acetate.

Q. 179. You are not a chemist?

A. No.

Mr. Darby: I offer in evidence the letter identified by the witness.

(Marked Plaintiff's Exhibit 55 in evidence.)

Q. 180. I notice this is a carbon copy with a signature on it. Do you know anything of Dr. Warth's practice with [fol. 510] regard to his correspondence?

A. Why usually he made a couple of copies and sent them to other members than the person addressed. Undoubtedly he sent another copy to someone else besides myself, but he would always sign them.

Q. 181. Have you made a search of your files for the original of this letter Exhibit 55?

A. My records do not go any further back now until around the beginning of 1928. That is the oldest I have.

Q. 182. I hand you a paper. Will you read the same and state whether or not you can identify it and if so when it was prepared?

A. I recall it.

Q. 183. Will you please read the paper?

A. "My invention relates to"——

Q. 184. I don't mean into the record, please read it enough to identify it.

A. "An unmetallic spot"——

Q. 185. Not into the record, read it to yourself.

A. Oh. Yes, sir, I do recall this very distinctly.

Q. 186. To what does the paper relate which you have just read?

A. It relates to an invention of Dr. Warth's on the use of varnished paper for spot crowns for certain beverages.

Q. 187. Is that the invention of the paper spot which is being manufactured by the plaintiff?

A. It is.

Q. 188. Did you sign this paper as of the date given thereon, July 13, 1925?

A. I did.

Mr. Darby: I offer this paper which has been identified by the witness in evidence.

(Marked Plaintiff's Exhibit 56 in evidence.)

[fol. 511] Q. 189. Have you any recollection of the work which Dr. Warth was doing at or about the time you signed this paper in 1925?

A. I have.

Q. 190. What is that recollection?

A. Dr. Warth brought me some of this paper, I believe it might have been a roll about one inch wide and he asked me to combine that or to put it on the spot crown——

Q. 191. You mean to run it in the machine with gutta percha tissue strips?

A. Separately, we were running them separately at that time?

Q. 192. Did you try to run it in the machine?

A. We did.

Q. 193. With what success?

A. The paper being heavy stuff was a poor conductor and we found we had to put the heater plunger on much longer a period, on top of the paper to penetrate the heat.

Q. 194. What happened?

A. It curled it up on the edge. We had some trouble but we finally got the right stuff.

Q. 195. Now, your results with running this in the machine were not satisfactory?

A. They were not very satisfactory, no.

Q. 196. In other words you found running paper in the machine a different proposition than running a metal foil?

A. Yes.

Q. 197. Did you have any other way of making paper spots on this machine where you could not run paper in?

A. No, we had no other way that I know of.

Q. 198. Do you know of any further efforts to manufacture paper spot crowns with these separate strips run into the machines, separate paper strips and the gutta percha?

A. I do. Warth showed me one that operated with different thicknesses, separate strips.

[fol. 512] Q. 199. Any better success when you were using separate strips?

A. No, it was harder with the combined strips.

Q. 200. You didn't have combined strips at that time?

A. No.

Q. 201. When you got the paper combined with the gutta percha what happened, were you able to run it through?

A. At the time we had the right material that didn't warp any more.

Q. 202. You had the gutta percha combined on the paper?

A. Well, we combined it on the combining machine, and then we did it, after some experimentation, we did do a little experimenting.

Q. 203. Do you know where you got your first combined gutta percha and paper?

A. You mean the date?

Q. 204. Do your know where you got the combined gutta percha and paper?

A. I received it from Dr. Warth.

Q. 205. Do you know where the plaintiff company, the Crown Cork & Seal Company received that paper?

A. I have no idea, no.

Q. 206. Did you have any contacts with the Bishop Gutta Percha Company?

A. Yes, but that was some time later when we ran into certain difficulties.

Q. 207. You had no contact with the Bishop Gutta Percha Company at the time you first began receiving products of combined gutta percha and paper?

A. That is right.

Q. 208. You had no contact?

A. No contact until that time.

Q. 209. But you know when you did begin to receive the combined material you were able to run it through the machine and make paper spot caps, is that correct?

A. Yes, we were.

[fol. 513] Q. 210. Did you try combining the paper and the gutta percha on your own combining machines?

A. Yes.

Q. 211. Did you do that to some extent?

A. We did that, but we had one difficulty, and that is that the gutta percha seemed to adhere to the shiny side, you see, rather than to the rough side. We combined it, and in unwinding it it finally worked it way over to the shiny side.

Q. 212. This combining machine simply took the two strips in the one machine over a tortuous course under rollers, and then wound them on the same reel?

A. On the same reel.

Q. 213. In that combining machine did you get enough of a satisfactory combination to make caps and sell them?

A. Oh, yes.

Q. 214. And did you sell paper spot caps made that way on the combining machine?

A. Yes.

The Court: When they were wound on the combining machine you say the gutta percha got on the other side?

The Witness: Yes, and the operator had to stop the machine, to tear it and run it off again, and then go ahead for a while. But it wasn't so very long until we got it calendered, and then it was all right.

Q. 215. So, after you got your own combining machines you began to combine the paper as you did the foil and ran that into the machine?

A. Yes.

Q. 216. Referring back to your work with Dr. Warth in 1926 on this nitrocellulose gum adhesive, as he put it, when did you next have contact with him on that type of adhesive for spot crowns?

A. I think that must have been in 1932, I believe.

[fol. 514] Q. 217. What were the circumstances surrounding your associations with Dr. Warth at that time?

A. The circumstances were that Dr. Warth brought me coated material, and I run it for him in the assembly machine, had it run in the spot machine, rather.

Q. 218. How did it run through? Did it run through?

A. It did, it showed right off that there were possibilities.

Q. 219. Did you make caps?

A. We did make caps, yes.

Q. 220. What happened to the caps, do you know?

A. Why, I kept them down in my department.

Q. 221. I think you still have some of them available.

A. I still have those, the very first ones, I still have those today.

Q. 222. Will you obtain those caps and produce them? Have you got them in the court room?

A. No, they are not here, they are in Baltimore.

Q. 223. Well, now, what did you know about the adhesive on this material that you ran for Dr. Warth in 1932? Did you know that it was nitrocellulose material?

A. Yes, I knew it then.

Q. 224. How did you know it?

A. By the name, of course, also he told me, talking to Dr. Warth about it.

Q. 225. From your general conversation?

A. Yes.

Q. 226. Without referring to what he told you, as I understood it, you made up these caps and ran them and delivered them to Dr. Warth, is that correct?

A. Yes.

Q. 227. Have you any personal knowledge, without reference to what Dr. Warth told you, as to what he did with them?

A. He made tests, carried on tests with them.

[fol. 515] Q. 228. Is that of your own knowledge, personal knowledge?

A. Yes, I knew he did that.

Q. 229. You saw him running them?

A. I saw Miss Stover, or somebody was running them. She carried on the tests, in fact, she prepared the material, she coated the strips.

Q. 230. Just how was that done, in the laboratory?

A. In the laboratory, yes.

Q. 231. I hand you a letter dated June 29, 1933, and another dated July 24, 1933; do you know anything about those letters?

A. Yes, I do.

Q. 232. What do they relate to?

A. They relate to equipment for coating this material.

Mr. Darby: I offer in evidence these two letters dated June 29th and July 24th, 1933, in evidence, as one exhibit.

(Marked Plaintiff's Exhibit 57 in evidence.)

(Recess to Thursday, November 14, 1935, at 10:30 a. m.)

Brooklyn, N. Y., November 14, 1935.

Met pursuant to recess at 10:30 a.m.; present as before.

Mr. Darby: With the Court's permission we would like to interrupt the testimony of Mr. Goebel and put on another witness.

The Court: I do not mind if the other side does not object.

Mr. Warland: No objection.

[fol. 516] Irving M. Oberfelder, called as a witness on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside?

A. Baltimore, Maryland.

Q. 2. What is your business?

A. I am in the ginger ale business.

Q. 3. What is the name of your company?

A. The Gosman Company.

Q. 4. What is your official connection with that company?

A. President and general manager.

Q. 5. How long have you been in the ginger ale business?

A. Eighteen, nineteen years.

Q. 6. How long have you been president of the Gosman Ginger Ale Company?

A. For approximately the same time.

Q. 7. In connection with the manufacture and distribution of ginger ale what kind of crown caps do you use?

A. Well, I do not quite understand the question.

Q. 8. What type of crown caps do you use?

A. We use a standard crown with a paper spot disc.

Q. 9. I hand you a box of crowns marked Plaintiff's Exhibit 28. Will you please examine the same and state whether or not that is the crown you use?

A. Yes, that is the same type of crown we use.

Q. 10. Where do you purchase those crowns?

A. Crown Cork & Seal Company.

Q. 11. In this box, Plaintiff's Exhibit 28, I notice some crowns are light-colored paper and some dark-colored [fol. 517] paper. Will you please explain which you use?

A. We use the dark color paper, yes, I think we use this dark color.

Q. 12. How long have you been using these crowns like Plaintiff's Exhibit 28?

A. Approximately five years.

Q. 13. Before you used these crowns what did the Gosman Company use?

A. We used a natural cork disc.

Q. 14. For how long a time?

A. Oh, for a great many years.

Q. 15. Did you use anything else than natural cork in any substantial portion of your business?

A. No; we used practically nothing else. I would say 100 per cent natural cork.

Q. 16. Where did you obtain those natural cork crowns that you purchased from time to time?

A. We bought them originally from the Crown Cork & Seal Company.

Q. 17. What do you mean, originally?

A. Well, we bought from the Crown Cork & Seal, and then I wasn't quite satisfied with the type of crowns we were getting, and we switched to another concern and found them unsatisfactory, and went back to the Crown again, and then switched to a second concern, and finally came back to the Crown Cork & Seal because we found the others were not quite as good as the crowns the Crown Cork & Seal made.

Q. 18. Why were you doing this switching?

A. We found that the natural cork did not have the

proper holding qualities, we had more or less trouble with the natural cork disc.

Q. 19. Will you please tell me some of the troubles that you had?

[fol. 518] A. Well, we found there were a number of troubles. We found that with the natural cork we had quite a few leakers, the disc sometimes would crack, and there were certain imperfections in the natural cork disc at that time that would permit the gas to get out. We also found that there were certain specks, the cork dust would get into the liquid, and on account of the shape of the bottle these little specks would become very much magnified, which was not a very good sales point. We also found that if we stored our goods for quite some time, that is, stored them with the natural cork, they would have in time a peculiar woody taste, I might say, from the natural cork itself.

The Court: The product became corky?

The Witness: Yes, the product became woody in time, as we call it.

Q. 20. Did you complain to these different companies including the Crown Cork & Seal Company about these troubles you were having?

A. We did, we took it up with the Crown Cork & Seal on many instances and with the other companies to try and find some way that we could get away from the natural cork.

Q. 21. And over what period of time did those troubles cover before you adopted the paper spot crown of Plaintiff's Exhibit 28?

A. It was quite a number of years. We had been having trouble I might say ever since I was in the business, we had more or less trouble with natural cork discs.

Q. 22. Until you got these paper spot crowns you were not able to get anything but the natural cork that was satisfactory?

[fol. 519] A. No, there was nothing made at that time that I knew of that would take the place of natural cork.

Q. 23. What about metal spot crowns, weren't they available?

A. Well, metal spot crowns we find are not just the right things to use for ginger ale.

Q. 24. Why not?

A. The amount of acid in ginger ale is quite heavy and the carbonation is very high and the action of the CO2 plus the acid just eats the metal spots.

Q. 25. Do you know of anybody in the ginger ale business that uses metal spot crowns?

A. I do not.

Q. 26. Or ever have?

A. To my knowledge, no.

Q. 27. Do you have any recollection as to the circumstances surrounding your original—when your attention was originally called by the Crown Cork & Seal Company to these paper spot crowns of Plaintiff's Exhibit 28?

A. I know the Crown Cork & Seal Company, when they came out with these crowns originally asked me to try them out and I was rather hesitant. They told me at that time that they had sold one or two of the large users the crowns and that it was satisfactory to them and I told them that was fine but I would much rather wait for their final results before going into it.

Q. 28. You were rather skeptical about it?

A. Yes, it was at least two years after they first came on the market before I adopted them.

Q. 29. And how did you find them in comparison with natural cork?

A. Very superior.

Q. 30. What about the price angle of it?

A. The price has quite a lot to do with it. The crowns are cheaper and very much more efficient from every angle.

[fol. 520] Q. 31. And you are referring, of course, to the paper spot crowns?

A. Paper spot crowns, yes.

Q. 32. There has been some testimony with reference to one particular complaint that your company made to the Crown Cork & Seal Company some years ago where there was a rather substantial claim made by your company. Have you any recollection as to the incident?

A. Well, it was some years ago—I cannot recall exactly the number of years—I should say possibly ten years ago, we were at that time using a natural cork crown exclusively.

Q. 33. From whom?

A. From Crown Cork & Seal and we put up a great deal

of ginger ale with these crowns and we put up our goods and keep them in storage for a certain length of time and when these goods commenced going out we got a tremendous number of complaints and in checking into it we found that the natural cork had some effect on the product itself. I don't know what the chemical effect was but it made the goods unmerchantable and we had to take all that back, all that merchandise back and all the merchandise that we had on the floor and destroy it. We had a terrific loss that time.

Q. 34. So when crowns go bad it may be a very, very serious thing?

A. Very serious, not only do you lose customers but the consuming public are not using your product.

Q. 36. Since you adopted these paper spot crowns of Plaintiff's Exhibit 28, have you used any natural cork crowns?

A. We have not.

Q. 37. None at all?

A. None at all.

Q. 38. You referred to the question of storage. I understand it is a fact that companies such as your own and [fol. 521] Canada Dry and others must prepare their product for possibly long storage in their own plant and their distributors' plants, is that correct?

A. It is.

Q. 39. And does this question of storage accentuate the weakness of natural cork crowns?

A. Yes, very definitely.

Q. 40. In what way?

A. Because the longer the goods are in storage—if I may correct that statement—we put the goods in storage for two reasons, one is to get the aging qualities necessary—there are certain chemical reactions take place and we have got to keep a certain amount of goods on hand at all times because not alone do we sell the local trade but the out-of-town trade and out-of-town distributors keep goods on their shelves for months at a time.

We have got to put out goods so that we know when the dealer gets them that they will keep in his premises, it isn't a day-to-day turn-over.

Cross-examination.

By Mr. Warland:

X Q. 41. You spoke of going to other manufacturers for some of the goods that you got when Crown Cork & Seal goods developed unsatisfactory tendencies. Do you mind stating who those other manufacturers were?

A. I do not mind; I do not know whether it is just the right thing to do, but if you insist on it, I will be glad to.

X Q. 42. Yes, please tell me who they are.

A. Why, at first, after switching from Crown Cork, I believe, I went to Truslow & Fulle, and tried out their crowns for some time and they weren't satisfactory. Then, we [fol. 522] went back to the Crown, and then went from the Crown to the Armstrong Cork Company, and after trying out their crowns, discontinued them and went back to the Crown again.

X Q. 43. These, of course, were natural cork crowns you are speaking of?

A. Natural cork discs, yes.

The Court: At that time, did you know of anybody in your line of business that was using anything else?

The Witness: I did not.

X Q. 44. You say that the metal center spot is not satisfactory for ginger ale, is that right?

A. As far as I know, yes, it has never been satisfactory on account——

X Q. 45. The paper spot is better?

A. The paper spot is better, yes, definitely so.

X Q. 46. And the paper spot pasted on a composition cork disc is much cheaper than a natural cork would be, is it not?

A. Yes, it is cheaper.

X Q. 47. And that had something to do with your changing from the natural cork to center spots, did it?

A. I wouldn't say that was the primary reason; that was not a primary reason. The reason we changed was because we wanted a crown that would keep our ginger ale right, a crown that would eliminate trouble. We tried out all kinds of natural cork crowns, regardless of expense, trying to get the proper kind of natural cork crown to hold our product, but couldn't find it.

X Q. 48. But one of the factors, of course, is the factor of expense?

[fol. 523] A. That was a secondary factor. We were trying to get the proper cork for sealing purposes, and we did not stop at expense to find it.

X Q. 49. Do you recall approximately the first date when you first bought crowns with a paper center spot?

A. The exact date, no; I should say it is about five years.

X Q. 50. That would make it around 1930, 1929 or 1930?

A. Sometime in there, 1929, 1930, 1931, I do not know, somewhere in those years.

X Q. 51. You mentioned one firm; you went to two firms, you went to Truslow & Fulle and Armstrong; were there any other firms that you went to?

A. At that time, no; those were the only two I tried.

X Q. 52. You never went to the defendant, Ferdinand Gutmann & Company?

A. I did not, no.

X Q. 53. You spoke of having some trouble about ten years ago. What was done to remedy that trouble?

A. Well, we had to dump, take back from our trade the merchandise that we had sent out. We had a great many thousand cases on the floor, and we had to dump all that. That was all we could do, just destroy it.

X Q. 54. After that you went right on using natural cork, a better quality natural cork, is that so?

A. No, I wouldn't say a better quality. We were getting what we thought was the best quality at the time.

X Q. 55. But you didn't have any more trouble then until you began to buy these center spots about 1930, is that right?

A. Well, I do not say we had no more trouble, no. We had more or less trouble all the time of various kinds, but never quite as bad as that.

[fol. 524] X Q. 56. Do you know whether the Crown Cork & Seal Company has any interest in the Gosman Ginger Ale Company?

A. To the best of my knowledge and belief, absolutely none.

Redirect examination.

By Mr. Darby:

R. D. Q. 57. Why didn't you use ordinary composition cork without the spot after you had trouble with natural cork?

A. The ordinary composition cork is not made for holding qualities, it is made for quick consumption of drinks that are put into a store and not kept on the shelf but used right away for a daily turn-over, on account of composition cork, the way the mixture is put together, the binder is used, in ginger ale the acid qualities and high volume of gas in ginger ale will decompose the composition cork. That is the reason we can't use it.

GEORGE GOEBEL, recalled.

Direct examination continued.

By Mr. Darby:

Q. 233. Referring to Plaintiff's Exhibit 57, and more particularly to the paper on the letterhead of John Waldron Corporation, will you please explain briefly what that relates to?

A. Yes, this relates to a quotation for equipment to coat the nitrocellulose adhesive onto the foil and slit it into ribbons and coils thereafter.

Q. 234. What was the purpose in receiving these quotations?

A. The purpose was that we intended to go into the use [fol. 525] of this material exclusively.

Q. 235. You intended to adopt the material, what material are you referring to?

A. I am referring to the adhesive, the nitrocellulose base, gum adhesive.

Q. 236. What was the equipment for?

A. The equipment was for coating material and to dry it in a long drying oven, to take out the solvent so that it would solidify and so it could be handled in the machine.

Q. 237. And what is the amount of the quotation on that paper there, the total?

A. The total amount of this quotation—I think it is over $10,000, here it is totalled up, $10,652.

Q. 238. Well, are you familiar with what preceded the receipt of that proposal by the Crown Cork & Seal Company from the John Waldron Corporation?

A. Yes, I am familiar with that.

Q. 239. Well, tell the story in your own words.

A. You mean what we did after we received the appropriation—I mean——

Q. 240. No, what preceded, what came before the receipt of this proposal?

A. After we saw the demonstration in the Waldron Corporation's plant then of course we sent them an inquiry, I do not know whether it was verbal or by letter, to give us a quotation for the equipment.

Q. 241. Did you have any tests run at the Waldron plant to see if their equipment was satisfactory?

A. We did, otherwise would never have spent this money.

Q. 242. What do you personally know of these tests?

A. I was present at the time they ran the tests.

[fol. 526] Q. 243. And how many tests were they?

A. We ran two different tests at two different dates.

Q. 244. I hand you a letter, will you please read the same and state what it is?

A. This is a letter written to me by Mr. Warth.

Q. 245. Now, referring to the first sentence which reads, "The second lot of thermoplastic coated aluminum foil .0022 thickness, prepared at the Waldron Company and slit there was put through the regular assembling operation on the third floor." Does that refer to one of the tests to which you have previously testified?

A. It does.

Q. 246. And did you receive this letter on or about the date, July 11th, appearing thereon?

A. I did I am sure.

Q. 247. Or at least a copy of it?

A. A copy, yes.

Mr. Darby: I offer in evidence the paper identified by the witness.

(Marked Plaintiff's Exhibit 58 in evidence.)

Q. 248. This contract about which you have testified a few minutes ago is identified as Plaintiff's Exhibit 57, is it not?

A. It is.

Q. 249. Or rather the proposal?

A. Yes.

Q. 250. Were you present at this test on the so-called second lot of thermoplastic coated aluminum foil and the cutting of it at the Waldron Company plant at New Brunswick, New Jersey?

A. I was.

Q. 251. And you observed the whole operation?

A. I did.

Q. 252. And were you present at the preceding test—I [fol. 527] believe you said there were two tests.

A. Two tests—I was.

Q. 253. And how long before the second test did the first test take place so far as you can recall?

A. The first test I believe was about May, I am not sure but it was a couple of months earlier.

Q. 254. The same year, 1933?

A. The same year, 1933.

Q. 255. Following this second test and the receipt of this Exhibit 58 by you from Warth what was done toward obtaining the commercial apparatus along the line of the proposal contained in Exhibit 56?

A. After receiving the proposal I entered an appropriation which was signed and sanctioned and we then sent them a purchase order for that equipment.

Q. 256. I hand you a paper; will you please read it and state what it is (handing to witness).

A. This is a form contract.

Q. 257. That was a contract that was formally tendered Crown Cork & Seal Company by the Waldron Company pursuant to the proposal, Exhibit 57, is that correct?

A. Yes, sir, that is correct.

Q. 258. And did you accept that contract?

A. We did.

Mr. Darby: I offer in evidence the contract identified by the witness.

The Court: That is a copy, isn't it?

The Witness: It is a copy.

Mr. Darby: It is plaintiff's copy in plaintiff's file.

(Marked Plaintiff's Exhibit 59 in evidence.)

[fol. 528] Q. 259. What is this paper that I now hand you?

A. This is a follow-up copy which is usually sent with the order to the people.

Q. 260. And that is a confirming telegram, confirming the order, is that correct?

A. That is correct, and also giving shipping instructions.

Q. 261. And was that telegram sent approximately on the date mentioned therein, namely, August 3, 1933?

A. I cannot state positively because that is out of my activities.

Q. 262. You know the contract was sent about that time?

A. Absolutely.

Mr. Darby: I offer in evidence a copy of the telegram.

(Marked Plaintiff's Exhibit 60 in evidence.)

Q. 263. Did the Waldron Company, following the acceptance of this contract for approximately $10,000 worth of equipment, furnish such equipment?

A. Yes.

Q. 264. How long after they furnished it was it installed?

A. We started immediately to install it, but it took quite a little while to get it functioning and in operation. We had great difficulties—not in the coating, but in the slitting of the material. It seems to be very difficult to handle foil, the thickness of this, with us not having any previous experience.

Q. 265. Had the Crown Cork & Seal Company ever done on a large scale coating of metal foil with a nitrocellulose resin adhesive before?

A. No.

Q. 266. This was an entirely new commercial operation?

A. Entirely new, yes.

[fol. 529] Q. 267. Will you explain why you were running these tests in the John Waldron Company in New Brunswick, New Jersey, in 1933 as you have testified, what was the object of the tests?

A. The object was this, that pursuant to comparatively good results we had obtained on previous tests with a temporary coating——

Q. 268. What do you mean by temporary coating?

A. I would say in a primitive way with a small coating machine, these tests showed there was great possibilities in the use of that material. It was more consistent, it would not oxidize, and——

Q. 269. Well, before you ran these commercial tests at the John Waldron Company there had been coating done in a

small way in the Crown Cork & Seal Company plant with this nitrocellulose resin adhesive?

A. Yes, there had been for a number of years previous.

Q. 270. With this same material?

A. Similar material, not the 4620, but years before we had a similar material that did not come out so well.

Q. 271. I am speaking about the year previous to these tests at the Waldron Company had you coated foil at the Crown Cork & Seal Company plant?

A. Yes, we had.

Q. 272. And do you know where this coating was done?

A. In the laboratory, under the direction of Dr. Warth.

Q. 273. And who under Dr. Warth did this coating, do you recall?

A. Principally Miss Stover, she worked on it all the time.

Q. 274. And she is the one that did the work for Dr. [fol. 530] Warth, under his supervision?

A. Practically all the work.

Q. 275. With this nitrocellulose resin adhesive?

A. Correct.

Q. 276. Do you know whether or not before you ran these commercial tests on coating there had been any tests made so far as the caps themselves were concerned and their suitability for use?

A. There had been tests made.

Q. 277. What do you know of your own knowledge with respect to those tests?

A. In fact, I carried on some of those tests myself, just to make sure that the material had the qualities we were looking for.

Q. 278. Where was the principal testing done?

A. The principal testing was done in the laboratory.

Q. 279. By whom, please?

A. I really couldn't say. Miss Stover did some, I know; there might have been somebody else, I do not know.

Q. 280. In whose laboratory?

A. In Dr. Warth's laboratory.

Q. 281. Following the tests of the caps for suitability on bottled beverages, you then went to the testing of the commercial suitability of material for coating on a large scale, is that correct?

A. That is correct, yes.

Q. 282. What is the speed of the spotting machines, center

spotting machines, which you now use in the plant of the Crown Cork & Seal Company?

A. Our standard machines operating today?

Q. 283. Yes.

A. That speed ranges from 520 to 540, somewhere around there; it is not less than 520.

[fol. 531] Q. 284. You testified yesterday to having obtained a speed of 420 some place in the record; what were you referring to?

A. Those were the machines, the original crown assembly machines. Those were the machines that we built before the latest machines.

Q. 285. When were these latest machines built that give you 520?

A. When were they built?

Q. 286. Yes, roughtly speaking.

A. They were built, they stretched over a period. They were designed in 1929, I believe we started, or 1930, when we first started to make drawings.

Q. 287. So far as the operating mechanism of these present machines is concerned, the preheater plunger, the punch and the post-heater plunger and the dial, do they differ any from the photographs, Plaintiff's Exhibits 41 and 42?

A. They differ in construction but not in principle.

Q. 288. Do the machines have those parts shown in the photograph?

A. They have parts, similar parts, but since the machine was drawn entirely new, why, the parts would not be interchangeable one with the other, but they were identical in the line-up and in principle.

Q. 289. You mean they all had a preheater plunger and a punch and a post-heater plunger and a dial?

A. They all had a preheater plunger and punch and post-heater plunger and dial.

Q. 290. Did you keep the same spacing or did the spacing vary?

A. We did spread some of the distances somewhat, because on the older machine which was basically a crown assembly machine, we did not need the greater space to apply the cork disc into the shell, but in this operation the crowns should have a little more room.

[fol. 532] Q. 291. What variation in space did you have? Was it a matter of inches or feet?

A. Well, it is a matter of inches rather than feet.

Q. 292. What do you mean? For instance, your preheater plunger, how far in your present machines is it from the punch?

A. We kept those about the same relative distance.

Q. 293. What is that?

A. It should be as close as possible.

Q. 294. Now, your post-heater plunger.

A. That is also about the same, yes, it should be as close as possible to prevent the spot from slipping.

Q. 295. You kept that as close as possible?

A. We did.

Q. 296. Your dial, how close is that to the post-heater plunger?

A. The dial is about the same distance, it might be just a few stations more.

Q. 297. You mean by a few stations a couple of inches?

A. It might be two or three inches more, greater distance from the dial.

Q. 298. So this step-up in speed is due to mechanical operation?

A. The step-up in speed is due to the fact of having a little more room available to apply heat, and the parts are designed, the operating parts, much lighter, to avoid momentum and inertia, and that is why we have speeded it up.

Q. 299. Yesterday I handed you this paper, Plaintiff's Exhibit 5; and I ask you to read your testimony on page 514. I asked you: "Will you read the same and state whether or not you can identify it?" And you answered: "I recall it." And then further down, in Q. 185, you said: "Yes, sir, I do not recall this very distinctly."

[fol. 533] A. That must be an error. I did not mean to say, "I do not," because I recall that I did.

Q. 300. You do recall it?

A. Yes.

Q. 301. The "not" should be stricken out?

A. Should be stricken out, absolutely.

Q. 302. Have you ever been in the plant of a competitor of the Crown Cork & Seal Company in the manufacture of crown seals?

A. I do not recall that I have ever been in a plant outside of the New Process plant, but then the merger was already completed.

Q. 303. By the way, you referred yesterday to consolidation at the time that a number of these old records were

destroyed. What consolidation were you referring to?

A. I referred to the merger, the consolidation of the New Process and the Crown Cork.

Q. 304. What has been the practice of the Crown Cork & Seal Company with respect to letting others go in their plant?

A. We have always had quite a rigid rule to be very careful in letting visitors go through the plant. It is not the custom to take anyone through; we have to be dead certain that the person is strictly on business, or occasionally we might take a friend through that we know is not in the same line of business.

Cross-examination.

By Mr. Warland:

X Q. 305. I believe you said yesterday that you went to work for the Crown Cork & Seal Company in 1914.

A. That is correct.

X Q. 306. What month in 1914?

A. The middle of July.

[fol. 534] X Q. 307. The middle of July, 1914?

A. Yes, sir.

X Q. 308. Who was superintendent of the Crown Cork & Seal Company at that time, factory superintendent?

A. They had a man there named Cade.

X Q. 309. Did they have a man named Smith, Albert C. Smith?

A. Not at that time. I know that Albert C. Smith was employed in the production department when I came with the Crown Cork & Seal Company.

X Q. 310. He was superintendent of the production department?

A. In later years.

X Q. 311. When you came to the Crown Cork & Seal he was superintendent of the production department, is that right?

A. Why, I can't surely answer that question, because at that time the organization was so great, so large, it took me some time to get acquainted with the people around. What his functions were at that time, I did not know.

X Q. 312. Didn't you meet him when you went there?

A. I met hundreds of people; I might have met him also. I am sure I met him later on.

X Q. 313. Wasn't he over you in the matter of production?

A. He was not; I reported direct to the president from the very beginning.

X Q. 314. Who did Mr. Smith report to?

A. Mr. Smith reported to the works management.

X Q. 315. Now, you say Mr. Smith was superintendent of production, is that right?

A. I do not; I didn't say that.

X Q. 316. What was Mr. Smith, so far as you know?

A. Before he left he held the position as plant manager [fol. 535] in the Highlandtown plant. That does not mean the entire plant. We have two divisions, the Crown Manufacturing Division and the machinery, that is entirely different.

X Q. 317. Where were the center spots made, in the Highlandtown plant?

A. In the Highlandtown plant.

X Q. 318. That is the plant Mr. Smith had charge of?

A. In later years, yes.

X Q. 319. You went to the Highlandtown plant when you went there?

A. My headquarters were in Guilford for a number of years until, oh, I guess probably in 1924 or 1925, when we moved the entire organization to Highlandtown, the production end was there.

X Q. 320. You identified a drawing of a machine here yesterday on which you made the first center spots. Where was that machine used, at Highlandtown?

A. Yes.

X Q. 321. All your testimony then in reference to that machine is about the events that occurred at Highlandtown, is that right, I am speaking of the slide machine.

A. I understand.

X Q. 322. You know what I mean?

A. Yes.

X Q. 323. That was all done at Highlandtown?

A. Yes.

X Q. 324. Mr. Smith was at Highlandtown, wasn't he?

A. When the machines were built, Mr. Smith, to my knowledge, was at Guilford Avenue. The entire office organization at that time was at Guilford Avenue.

X Q. 325. The whole office organization was there and Mr. Smith had charge of the work at both places, didn't he?

A. No, what do you mean both places, do you mean the bottling machinery and also the crown machinery?

[fol. 536] X Q. 326. Yes.

A. Not to my knowledge, no. Those two never had been merged into one.

X Q. 327. Mr. Smith just had charge of the crown machinery?

A. He was in the crown production department, yes.

X Q. 328. I believe you said yesterday you started to make center spots the latter part of 1915, is that correct?

A. No, I think at that time we were building the machines, those slide machines. It might have been 1916 when we were actually putting them into operation. I cannot recall. If that was the only job I handled for that company it might be a little different, but there are hundreds of others.

X Q. 329. I am going to read some testimony that Mr. Smith gave in an interference proceeding, in Lange v. Warth, and see if that coincides with your recollection:

"When did the Crown Cork & Seal Company commence the manufacture of spot crowns, and I refer to bottle caps having small center spots covering the insert of metal caps?

A. About 1914.

"Q. And did they commence commercial production at that date?

A. They did.

"Q. Of what was the center spot composed, of what material, at that date?

A. Tin-foil spot and the adhesive was gutta percha, I think. I am not sure what it was in 1914."

Now, when do you say they first began to make center spots?

A. I cannot tell you the exact date, it was between 1915 and 1916.

[fol. 537] X Q. 330. But Mr. Smith had charge of the records of the company, didn't he?

A. No.

X Q. 331. Don't you know that he was called as a witness in this proceeding to identify the records of the company?

A. I don't know that. It was not one of my functions so I don't know.

X Q. 332. You were asked about this Johnson Duplex machine that was bought from the Crown Cap Manufacturing Company. You say that is still in the Crown Cork & Seal Company?

A. Yes, that is still ours.

X Q. 333. Now, Mr. Warth, you say in 1926, told you about some nitrocellulose adhesive, is that right?

A. In 1926?

X Q. 334. Yes.

A. Well, I am not sure whether it was 1926 exactly, it might have been before that. It was around that time.

X Q. 335. You were shown a letter from Dr. Warth dated some time in 1926, and which is in evidence. Did Dr. Warth show you nitrocellulose at that time?

A. He did.

X Q. 336. How do you know it was nitrocellulose?

A. Well, I do know this, that a resin base material of that nature has usually a solvent of ethyl or methyl or butyl—as solvents, and it had a peculiar smell.

X Q. 337. All those nitrocellulose adhesives have a peculiar smell?

A. Yes, they had a peculiar smell characteristic, so it is not hard to tell what the base is.

X Q. 338. You are not a chemist?

A. I am not a chemist.

X Q. 339. And all you know about this material that Dr. Warth showed you is what he said about it?

A. Yes, but I know enough about it to know the difference.

[fol. 538] X Q. 340. After he told you what it was you knew what it was?

A. I don't want to say that he had to tell me. I knew that it must be so.

X Q. 341. Referring again to this nitrocellulose, you produced a letter dated June 29, 1933, marked Plaintiff's Exhibit 57, from the John Waldron Corporation. Now, prior to the date of that letter, you had not done much in the way of experimenting on this adhesive, had you?

A. Quite a bit, yes.

X Q. 342. But you were not sure of what it would do, were you?

A. From the very, very beginning, when we first obtained coated material, I mean hand-coated material and applied it on to the cork we saw the feasibility, that it was promising and it looked very promising, that is why we kept after it.

X Q. 343. You knew right away, as soon as you saw a piece of tin-foil or metal foil coated with that that that was going to make a good adhesive?

A. Not unless we tried it.

X Q. 344. And in order to make those tests you had to send to the John Waldron Corporation and have them make a test in June of 1933, is that right?

A. That was after we made the laboratory tests. At that time we were already certain that we wanted the equipment or else we would not have taken the time to go up there and ship a lot of material which had an extra slotting because the machine that the Waldron Corporation had would not take a width of 22 inches, it would only take a width of 19 inches so we had a special lot made up by Aluminum Company, narrow enough to go through that experimental machine at Waldron's, and that took some time too.

[fol. 539] X Q. 345. About how long would you say before the date of this letter of June 29, 1933, how long would you say you were experimenting with this adhesive?

A. Well, the laboratories did the experimental work.

X Q. 346. I am asking you how long, not who did it.

A. It was a number of years, I cannot tell exactly how long, but a number of years.

X Q. 347. And you have no way of fixing the exact date at all, have you?

A. I do, with one where we received a sample material.

X Q. 348. Where did you get the sample material from?

A. I don't know where Dr. Warth got it from, he obtained that, I did not buy that for him.

X Q. 349. You do not know anything about when he first got the first sample?

A. I saw him have it but I don't know where he got it.

X Q. 350. You don't know the date of that first sample?

A. No.

X Q. 351. Now, you put in evidence here a photograph of this machine which is in the back of the room and which has been marked Plaintiff's Exhibit 46, and the photographs marked Plaintiff's Exhibits 41 and 42. Will you show us the die in that machine that cuts the center spot out, is it this one up here to which I am pointing (indicating).

A. This is the punch.

X Q. 352. That cuts the spot out, doesn't it?

A. Yes.

X Q. 353. Now, is that punch heated or is it cold?

A. It is always warm because the heat alongside of it would keep it hot.

X Q. 354. But you do not apply any heat to that punch?

A. Not in our regular production, but we have, however, used heat, used a hot punch.

[fol. 540] X Q. 355. In the machine you use now, you do not put any outside heat on that cutting punch?

A. No, it is not necessary with that heat on both sides.

X Q. 356. Do you put it on or don't you?

A. Not in our regular production, but the heat is radiated——

The Court: He said there was heat on each side.

X Q. 357. But you did not apply any outside heat, any electrical heat or any gas flame to that cutting punch, did you?

A. I want to make this clear.

The Court: If it is heat generally, it is applied to everything.

X Q. 358. Is there any heat applied directly to the cutting punch itself?

A. Not in our regular production but we have machines with the heat applied directly to the punch. I want to put it that way.

X Q. 359. You have other machines besides this?

A. On the machines we have used.

X Q. 360. Will you show me where the heat is applied to the punch?

A. We heated this punch here by electricity, right on this housing here (indicating) and that operates all right except that the heat must be controlled—it gets too hot and it gums up the gutta percha, or too cold—but if you keep it at a certain temperature it works fine. I do not know what the temperature is.

[fol. 541] X Q. 361. You do not know what the temperature is?

A. No, I don't remember.

X Q. 362. Above room temperature, isn't it?

A. Above room temperature, of course.

X Q. 363. But you cannot cut your center spots out with gutta percha adhesive if the punch is hot, can you?

A. If the punch is overheated, no.

X Q. 364. Now, you stated in answer to a question of Mr. Darby's that in 1929 you got your production up to 520 a minute.

A. I did not say 1929, to my recollection. The production of 520 plus was obtained after the new machines—the machines we are using today—were completed. The machines we were using at that time, in 1929, did not run that fast.

X Q. 365. Did you tell Mr. Darby a few moments ago that in 1929 you speeded up to 520 a minute?

A. If I did, I surely must have misunderstood him.

X Q. 366. It was after that you got them up to 520 a minute?

A. I have to repeat that again. This high speed is only obtainable with our latest type machines.

X Q. 367. But the point I am making is, when was it that you got your high speed, was it in 1929 or since 1929?

A. It was after 1929; I believe it must have been in 1931, I believe, when we got the new machine going, in 1932 perhaps, I really don't remember.

X Q. 368. That was after the Crown Cork & Seal Company bought the spotting machines from Mr. Johnson you got the high speed, that is right, isn't it?

A. We never operated the Johnson spotting machines.

X Q. 369. You never operated the Johnson spotting machine?

[fol. 542] A. We bought a couple of spotting machines from Johnson to be sent to our Toronto plant, and we took them to our Highlandtown plant to ascertain that they will operate and run. We didn't do anything to them, we packed them up and sent them to Canada.

X Q. 370. You bought them from Johnson and he shipped them to the Highlandtown plant and you tested them?

A. To test them as to their operation.

X Q. 371. That was in 1929?

A. I do not know; the invoice ought to show; I do not know when it was.

X Q. 372. But they worked all right, didn't they?

A. They worked, well, I wouldn't say they did, because Toronto doesn't use them any more, they are slow——

X Q. 373. What became of all those five machines?

A. I did not know there was five; all I know is there was two. Whether Toronto ordered some more after that, I haven't the least idea.

X Q. 374. You didn't make any authorization to scrap those machines that you bought from Johnson, did you?

A. That is a matter that concerns Toronto only, not myself.

X Q. 375. You wouldn't know?

A. I wouldn't know. I do know, however, on my last visit to Toronto that they were operating the Crown Cork spotting machines, I know that.

X Q. 376. Now, you say you met Johnson in 1918, is that right?

A. I do not know whether I can be certain about the year, but I met him years before, yes.

X Q. 377. You have seen him quite frequently, haven't you?

[fol. 543] A. No, sir, I have seen him only once, at the convention, I believe it was.

X Q. 378. When was that convention?

A. I have forgotten; 1918 or 1919 somewhere, I have forgotten the year, but I recollect his face. In fact, Mr. Johnson, when he was in the court room, I didn't recognize him because I only met him once since I met him the first time at the Crown Cork & Seal plant. I didn't even meet him then; I saw him.

X Q. 379. When you saw him he was not in the spotting machine department, was he?

A. No, he was with Mr. McManus.

X Q. 380. That was in the assembly department?

A. I have forgotten where it was I saw him with Mr. McManus.

X Q. 381. You said yesterday you saw him in the assembly department, is that right?

A. It might have been in the assembly department, I do not know.

X Q. 382. You were speaking about some drawings yesterday and you were asked this question by Mr. Darby: "Did those drawings have any practical bearing on your operating equipment in your plant at that time?" And then you said: "No, they were since then drawn up, all drawn up.

"Q. They were superseded drawings?

"A. They were superseded drawings, they had no value except it might be in this case, but we did not know."

Those were those blueprints you were speaking about yesterday?

A. Blueprints, yes.

X Q. 383. In other words, they were all made up since the case started?

A. No; the prints?

[fol. 544] X Q. 384. Yes.

A. Not the originals; they were old.

X Q. 385. What were the superseded drawings?

A. The superseded, they are not all superseded, only certain parts where we found it necessary to make a change in construction. We usually keep the original and mark it "superseded," and put either the same number or sometimes we give them a different number, and the originals were always kept on file, and the new one, but they were not used to make prints because after that we did not make any prints unless they were by special orde from superseded drawings. The reason I brought those superseded prints here was because that the other drawings that were made after we superseded them were of a later date, and so I thought I would bring them along to show when they were made, the originals.

X Q. 386. You haven't got any original records back of 1928, have you?

A. Any which?

X Q. 387. Any original records, any original records back of 1928?

A. You mean in the form of pencil drawings and sketches used by the shop men?

X Q. 388. Yes.

A. No, we did not preserve them. You refer to the drawings, the sketches made to build the first experimental unit?

X Q. 389. I am asking if you have got any records of any kind back of 1928, original records?

A. Yes, we have drawings that I showed you, but we have not got any pencil sketches.

X Q. 390. You haven't got any of the original pencil sketches these drawings were made from, have you?

A. No, we haven't any more; we do not make it a practice [fol. 545] to preserve the original pencil sketches. After a drawing is once made, we destroy them, put them in the waste basket.

Mr. Darby: Do you want the originals from which these blueprints are made?

Mr. Warland: I am asking him if he has any original records back of 1928.

The Court: He testified yesterday they had no pencil sketches prior to 1928. These blueprints are copies of original drawings which they had.

Mr. Scull: What we want to know is whether or not there is any question as to these blueprints.

The Court: Some of them are prior in point of date to 1928.

Mr. Scull: Yes. What I meant was the physical thing, whether or not they are challenging the physical thing, because we can produce the originals——

Mr. Warland: I am asking the witness.

Mr. Scull: I am asking you now. Are you now objecting to the use of these blueprints instead of the original drawings from which the blueprints were made?

Mr. Warland: I would like to see the original drawings.

Mr. Darby: We have them here.

The Witness: They are here.

Mr. Scull: There was no objection made at the time.

X Q. 391. Now, this Anheuser-Busch incident that you testified about in 1926, was that the first time you used paper [fol. 546] spot crowns in order to overcome the difficulty?

A. I did not know we ever furnished Anheuser-Busch paper spot crowns.

X Q. 392. Center spots.

A. Center spots.

X Q. 393. Did you furnish them center spot crowns before that?

A. To whom?

X Q. 394. To Anheuser-Busch.

A. No; we haven't furnished them any prior to that visit.

X Q. 395. Before that they had been getting all natural cork?

A. Natural cork.

X Q. 396. Now, there has been offered in evidence here as Plaintiff's Exhibit 51 a letter dated April 15, 1925, referring to obsolete surplus idle machinery. You have got on there three tin-foil machines, $3,705.60. What were those three tin-foil machines, were they to put on center spots?

A. Yes, these three machines I recall were the old slide machines that we discussed previously.

X Q. 397. The old spotting machines, the old slide spotting machines?

A. The old slide spotting machines, not this type (indicating), the other type.

X Q. 398. You said something yesterday in answer to Mr. Darby's question about combining the gutta percha with the foil or with the paper. Just what do you mean by combining?

A. We combine the two materials in order to eliminate interruptions in operation. What I mean by combining is to take the two materials and run them through, after they are put together, through a series of pressure rollers. The foil for instance we are in a habit of heating it at an elevated temperature and then roll the gutta percha on to it so that the two become one.

[fol. 547] X Q. 399. In other words when you say combine, you mean the gutta percha or any other adhesive is secured firmly to one side of the foil or paper, is that right?

A. That is correct.

X Q. 400. Either by hand or by a machine or in any other way?

A. By machine, yes.

X Q. 401. You mean like that shown in this Warth Patent 1,899,782?

A. Yes, that is substantially right.

X Q. 402. Well now, I show you a patent to Warth 1,899,783 and I call your attention to Fig. 3 which shows a strip of foil and strip of gutta percha being fed in separately.

A. Yes, I imagine that was separated to indicate that there were two different kinds of material, that is the way I figured it out.

X Q. 403. That is the way you used to put the gutta percha on the spots before you used this combined material or what you call combined, is that right?

A. That is the way we did it before we built the combining machines, yes.

X Q. 404. Are you using this method shown in patent No. 1,899,783 now?

A. No, now we exclusively use the combined material except on tin-foil which we have not been able to get up for calendering properly.

X Q. 405. And when did you stop using this method shown in patent No. 1,899,783 for aluminum foil or paper?

A. Whenever we got the combining machines finished.

X Q. 406. What date?

A. I don't remember dates, but it was quickly after we came from St. Louis because our production had to be boosted to take care of that business and then it was Dr. [fol. 548] Warth advised us to combine the two materials. It might have been in 1927 or 1928.

X Q. 407. This method which I showed you where they were fed in separately, you started that way back in 1915 or 1916, didn't you?

A. That is correct.

X Q. 408. Now, going back to this center spot made of glazed varnished paper, when was that first used?

A. I don't recall the exact year.

X Q. 409. Can you give us an approximate idea?

A. I really cannot tell you, I know that it was around perhaps 1926, 1925 or 1927, I really cannot exactly recall the date. When the samples that Dr. Warth—I supervised the running of them and I usually would take them out to the plant and state, "Here, run this material and see what happens" and that is about the only time that I was engaged with it. All the experimental work was carried on by Dr. Warth. I cannot name the exact year except that it was a good many years ago, a number of years ago.

X Q. 410. Long before 1920 you used varnished paper, didn't you?

A. No.

X Q. 411. Coated on one side with some sort of an adhesive?

A. I really cannot tell you whether it was 1920, I know it was quite a while ago.

X Q. 412. That is just the same kind of paper you use in these center spots now?

Mr. Darby: I object, your Honor, this witness has not been qualified as to the character of papers, so far as the technical character of material goes.

The Court: Well, if he knows he can answer, I don't know whether he knows or not.

[fol. 549] The Witness: As I testified yesterday I do remember Dr. Warth bringing around a number of different kinds of samples of varnished paper and some did not

behave as well as others, that is they curled up on the edge after they were applied and then finally he brought some material around that was all right. I did not follow that very closely.

X Q. 413. When I speak of varnished paper I refer to the kind of paper in this center spot that comes from a box marked Plaintiff's Exhibit 28 (handing to witness).

A. This is what we call our paper spot crown.

X Q. 414. You know when you first saw that, that is the kind of paper I am asking you, what kind of paper Dr. Warth showed you. When did you first see it?

A. I cannot recall, a long while ago.

X Q. 415. That is varnished paper with an adhesive on one side?

A. Yes, it is varnished paper.

X Q. 416. Now, you used that same kind of paper for a great many years in the Crown Cork & Seal Company?

A. It all depends on what you might designate as a great many years. We have used it quite a number of years, yes.

X Q. 417. You have used it for making caps for screw cap bottles like ketchup bottles and mayonnaise bottles and so forth?

A. Our screw cap business is comparatively young, I believe we used varnished paper on crowns before we ever entered into the screw cap manufacture.

X Q. 418. I read you an extract from a stipulation made [fol. 550] in this Interference No. 60,878 which was put in instead of calling you as a witness. You say, on page 92, "The paper used in both machines since 1914 and 1915 was always varnished paper. That at the early stages of 1915 and 1916 the paper was varnished on both sides, but beginning a few years thereafter, certainly prior to 1920, it was obtained varnished on one side." Then they produced a specimen of paper "such as was used beginning 1918 and 1919"; that is correct, isn't it?

A. This refers to a different category of crowns.

X Q. 419. I am asking you about the paper, not about the crowns. Your statement is correct that I have just read to you?

A. It is correct so far as the use of varnished paper in actual crowns are concerned, yes, large diameter crowns, faced overall, all over the cork.

X Q. 420. Do you remember any machines that were put in evidence in that interference?

A. No.

X Q. 421. Yesterday, in answer to one of Mr. Darby's questions, you stated: "I have never made it a practice to remember dates because I cannot possibly do it." That is correct, is it?

A. I did.

X Q. 422. You do not remember what month Mr. Johnson was there in 1928, do you?

A. The reason I do remember that is on account of the consolidation which had taken place a couple of months before that.

X Q. 423. Right after the consolidation?

A. Yes.

[fol. 551] Redirect examination.

By Mr. Darby:

R. D. Q. 424. In your testimony you have been referring to material such as was made in 1915 and 1916 by the Crown Cork & Seal. Will you examine this and state how that compares to it?

A. This is the material that has been used, and we call Axa crowns.

R. D. Q. 425. In other words, since 1915 and 1916 you took the paper and coated it with either cardboard or pulp board?

A. Yes, sir, and also on cork.

R. D. Q. 426. Cork sheets?

A. Cork ribbon.

R. D. Q. 427. And that is the sort of stuff you were referring to in the interference and in this case as having been made in 1915 and 1916, is that correct?

A. Correct.

R. D. Q. 428. That was Warth Exhibit 52 in interference 6878, marked, is that correct?

A. That is correct. Yes, sir.

Mr. Darby: I offer in evidence the strip of material identified by the witness.

The Court: It will be received.

(Marked Plaintiff's Exhibit 61 in evidence.)

The Witness: May I add that this material was punched and inserted into the shell, they had both the same diameter, and the lining was punched simultaneously with the cushion.

R. D. Q. 429. In other words, it was to make up caps something like this one I hand you in which the paper covers the pulpboard or cork, is that correct?

[fol. 552] A. Yes, sir, covers the entire surface, which are not suitable for a seal.

R. D. Q. 430. For a seal for what?

A. For any beverage, carbonated beverage or carbonated water.

Mr. Darby: I offer in evidence the cap identified by the witness as typical of what was made from the material of Plaintiff's Exhibit 61.

(Marked Plaintiff's Exhibit 62 in evidence.)

R. D. Q. 431. In other words, in making these all-over crowns you make large strips or sheets of combined paper and either pulpboard or cork and punch discs on them, and those discs are dropped into the crown seals?

A. As a rule we use continuous rolls of material being previously combined by cementing, and then punch them both together and insert it into the crown, yes.

R. D. Q. 432. You have testified with reference to visits to the Waldron Company at New Brunswick, New Jersey, in connection with tests preliminary to ordering equipment which was ordered later. What scale of production of crown caps were you getting ready for, will you give us some idea of what your plans were for production, what you had to get ready for?

A. We anticipated at that time to take care of our ultimate production, I mean of the production using the nitrocellulose altogether.

R. D. Q. 433. How many hours a day was that equipment run after it was installed?

A. After it was installed we had quite a bit of gutta [fol. 553] percha combined material on hand, and we started to work it at certain portions during the day and worked into it gradually, and worked it more afterwards until finally we wound up in two shifts to give over 100 per cent. Now, we are not quite as busy——

R. D. Q. 434. What do you mean by two shifts, how many hours a day would that equipment be working in two shifts?

A. That would be sixteen hours.

R. D. Q. 435. In other words, you were getting ready equipment to be run sixteen hours a day?

A. Yes, that is, depending upon the other equipment being installed.

R. D. Q. 436. What cap production would, say, an eight-hour day produce, what production?

A. An eight-hour day would take care of probably less than 50 per cent. of our entire spot production.

R. D. Q. 437. Give me some idea of what 50 per cent. of your spot production would have been at that time when you got this equipment, roughly, if you can, as accurately as you can?

A. 50 per cent. probably would be about, I would say about forty to forty-five thousand gross.

R. D. Q. 438. Over what period, a day, a month or a week?

A. A day.

R. D. Q. 439. 45,000 gross a day?

A. Forty to forty-five, that is, in our peak demand, peak production.

R. D. Q. 440. So if you operated this equipment eight hours a day that you were getting, you could produce at the most from it 45,000 gross a day?

A. That is right.

R. D. Q. 441. Now, you have testified with reference to [fol. 554] certain Johnson machines. You recall some Johnson machines being bought?

A. You mean spot machines or assembly machines?

R. D. Q. 442. Spot machines.

A. Yes, I do.

R. D. Q. 443. Were any Johnson machines ever used in the Crown Cork & Seal Company in the United States, I mean center spotting machines for center spotting caps?

A. You mean subsidiaries of Crown Cork & Seal?

R. D. Q. 444. No, in your plant at Baltimore, were any Johnson machines ever used, Johnson center spotting machines?

A. No. We tried, as I stated before, two machines that were sent to Toronto, bought by Toronto, and made sure that the spot was cut clean and the method was, it would

stay on, and then we shipped them. but we have not produced any crowns with them.

R. D. Q. 445. Were those machines with which you are familiar and shipped by Johnson to Baltimore, simply shipped there and then tuned up and sent direct to Toronto?

A. That is right.

R. D. Q. 446. You testified you were up in Toronto a short time ago and that they were using,—or some time ago; when was that?

A. That was about two years ago.

R. D. Q. 447. What has happened to those Johnson machines that were shipped up there?

A. I haven't any idea.

R. D. Q. 448. Were they in use in Toronto?

A. No, they were not using them up there.

R. D. Q. 449. What were they using in Toronto at that time?

A. They were using a similar machine as this exhibit over here.

R. D. Q. 450. In other words, later you were able to furnish them machines of your own manufacture from Balti- [fol. 555] more, is that correct?

A. That is right. When we were able to produce them, before we were so busy we could not touch anything like that, and when we were able to produce them we sent them the other machines. I suppose they cast aside the others, I suppose they were cast aside, they were not operated.

R. D. Q. 451. You know they were not in operation?

A. They were not in operation.

R. D. Q. 452. Referring to this machine that was part of the equipment of the Crown Cap Company that Crown Cork & Seal bought some time ago, and more particularly to that combined machine for putting the cork in the same machine with the spots, where have you got that down in the plant at Baltimore?

A. Why, it seems that it was shipped very recently from Brooklyn up here down there, and when I was down, that was before I left Baltimore, I saw it in the receiving department downstairs where they received the goods in the original, in the crate; it was not put up.

R. D. Q. 453. Has it ever been mounted for operation of any kind?

A. No, I am sure of that.

R. D. Q. 454. The last time you saw it it was crated?

A. It was on skids, I do not mean to say that it was entirely boxed up, it was on skids.

R. D. Q. 455. Yesterday you identified certain blueprints, Plaintiff's Exhibits 47, 48 and 49, three envelopes. When were these particular blueprints made, the prints, and explain the circumstances of how you came to make them?

A. The prints were made not so awful long ago.

R. D. Q. 456. And at whose request?

A. At Mr. Fustings' request.

[fol. 556] R. D. Q. 457. Do you know what Mr. Fusting wanted them for?

A. Yes, I understood he wanted them for testimonials, I understood.

R. D. Q. 458. When you made those prints, did you have anything to do with the getting out of the original drawings in your files from which the prints were made?

A. The majority of the drawings were easily located by the blueprint boy at the vault.

R. D. Q. 459. And did you check them yourself?

A. Yes, I had to go down, however, to make sure that we did not miss any.

R. D. Q. 460. Do you recall bringing those original drawings with the blueprints to my office last Spring or late last Fall?

A. I do.

R. D. Q. 461. I hand you a container. Will you state what it contained when you last examined it at least?

A. Upon the request of Mr. Fusting to take the original along I procured this thing and I had the boy put them in.

R. D. Q. 462. And those are the original drawings from which the blueprints were made?

A. Yes.

R. D. Q. 463. And have they been in your possession ever since they were made?

A. They have been in our possession in the vault. We carry all prints in the vault, which is a fireproof vault. These are all the drawings. These are the originals of those prints.

Mr. Darby: I offer the drawings presented by the witness in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 63 in evidence.)

It is stipulated by and between counsel that the drawings [fol. 557] may be withdrawn by plaintiff's counsel, subject to inspection by defendant's counsel on request.

R. D. Q. 464. I understand that these drawings you have here were merely selected by me as typical of drawings which represented the parts here and are not drawings of the complete machine?

A. Yes, the drawings are not to take care of the entire machine. These are only in connection with the spotting attachment.

R. D. Q. 465. Do you recall when you brought some drawings over to my office with dates that said superseded and that I asked you to go back and get some original drawings which were not superseded?

A. Yes, I think there are some right here now. Standard drawings that are used today.

R. D. Q. 466. With reference to any drawings that are marked "superseded" will you state whether or not the parts of spotting machines such as are in Plaintiff's Exhibit 46, were actually made and used in machines, parts from these drawings, any of which may be marked superseded?

A. They were all used.

R. D. Q. 467. Parts of all these drawings no matter how they are marked were used in machines, is that right?

A. Were used in machines, yes.

[fol. 558] WILLIAM F. WAGNER, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside?

A. Philadelphia.

Q. 2. What is your occupation?

A. Letter carrier.

Q. 3. Were you ever employed by the American Cork & Seal Company of Philadelphia?

A. Yes.

Q. 4. When?

A. Well, in the latter part of '12 and the early part of '13.

Q. 5. And how do you fix that time?

A. That was the first job I ever had and I was working just before I was 16.

Q. 6. When were you 16?

A. I would be 16 on the 25th of December, 1912.

Q. 7. You were then 16 when you went to work for this concern?

A. No, I was not 16 yet.

Q. 8. Within a very few months?

A. Before I was 16.

Q. 9. You were there at any rate on your sixteenth birthday?

A. Yes.

Q. 10. What was the business of that company?

A. They made regular bottle caps, I guess you would call them.

Q. 11. That is just a tin shell with the cork discs in them?

A. Yes.

Q. 12. And was it composition cork or natural cork?

A. I believe they used both at that time.

Q. 13. Was there a man there by the name of Keller at that time?

A. Yes.

Q. 14. What was he doing?

[fol. 559] A. I don't know his capacity, I believe he was plant superintendent, but I am not sure.

Q. 15. Was there any work done on putting spots on crown corks while you were there?

A. Well, they had two machines there that they called the Keller machines on which they used a block tin spot.

Q. 16. Will you just describe the kind of spot that they were trying to make, will you?

A. Well, the crown had a rubber disc and the center was a block tin which was then soldered fast. They used solder to solder the block tin center in.

Q. 17. I show you a number of caps in a box marked Exhibit 19 and I ask you whether or not those are the things that you have just described?

A. Well, they look somewhat like it, it has been a long time since I was there and saw the others, but these look as though they may be the same or at least similar to them.

Q. 18. Now I show you a patent to Keller 1,081,505 and I ask you to look at the drawings, particularly the first three figures and state whether or not according to your recollection those drawings look something like the machine you have been telling us about?

A. Yes, I believe they are the Keller machines all right, that they had at that time.

Mr. Scull: I offer a copy of the Keller patent 1,081,505 in evidence.

(Marked Plaintiff's Exhibit 64 in evidence.)

Q. 19. Now you say that in this Keller machine the center block tin part was soldered to the shell?

A. Yes.

[fol. 560] Q. 20. And to what extent was that done, how many caps were made while you were there?

A. Very few, very few.

Q. 21. Was there any difficulty in the operation of the machine?

A. Considerable.

Q. 22. What was it?

A. There was considerable trouble with the heat in the final stage which was for the soldering of them in, either the iron was cold or the solder would not melt or the iron was hot and it would burn through the block tin. There was considerable trouble.

Q. 23. Were any of those caps sent away so far as you know?

A. You mean sold?

Q. 24. Yes.

A. Yes, but very few though, I know they did not operate very much.

Q. 25. Was the machine operating continually while you were there?

A. No, sir.

Q. 26. I show you a copy of a patent to Bartlett No. 993,288 which is assigned to the American Cork & Seal Company and I ask you to look at the drawings of that machine and state whether or not you saw any such machines as that when you were with the American Cork & Seal Company?

A. No, I don't believe I ever saw one of those in my time there.

Q. 27. Did you see any attempt, while you were there with the American Cork & Seal Company, to use a cement or paste to hold in these block tin pieces, instead of soldering?

A. No, sir.

Q. 28. Since you left the American Company have you worked for any other crown cork company?

A. Yes.

Q. 29. Which one?

A. Well, I worked for one that was known as the Penn Cork & Seal Company in Philadelphia.

[fol. 561] Q. 30. When was that?

A. Well, I just couldn't say when that was. That would be several years after I left the American.

Q. 31. Any others?

A. I did work for the Standard Crown.

Q. 32. For how long?

A. For five years.

Q. 33. When was that?

A. That would be about 1916, I imagine, to 1921.

Q. 34. And were either of those companies making spot crowns while you were with them?

A. None, no, sir.

Cross-examination.

By Mr. Warland:

X Q. 35. What was your position when you went to work at first for the American Cork & Seal, when you were sixteen years old, what did you do?

A. Most anything; I didn't really have any particular position.

X Q. 36. You were working in the factory or in the office?

A. In the factory.

X Q. 37. Doing what?

A. Well, cutting tin, running punch presses, working on these machines, helping to process cork, most anything that they found for me to do.

X Q. 38. You had no particular charge of these machines?

A. I just worked on them when I was told to, that is all.

X Q. 39. When you worked on them they were making stoppers with a metal center spot and rubber ring?

A. Yes.

X Q. 40. Did you ever use anything else besides rubber?

A. No, sir.

X Q. 41. And they were selling them to a certain extent right along?

[fol. 562] A. I wouldn't say that; they made very few of them, so they couldn't have been selling very much.

X Q. 42. What do you call very few?

A. I do not believe that we ever made an order of more than forty gross.

X Q. 43. But they did make several orders of forty gross?

A. I guess so, in my time there was very few, they didn't run much.

X Q. 44. You didn't know anything about the patents at that time?

A. No, sir.

X Q. 45. You were not shown the patents?

A. No, sir.

HORACE M. CUSHMAN, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside?

A. In Millis, Massachusetts.

Q. 2. What is your employment?

A. Factory superintendent of Cliquot Club Company.

Q. 3. The Cliquot Club Company, which makes the Cliquot Club Ginger Ale?

A. Yes, sir.

Q. 4. How long have you been employed by the Cliquot Club Company?

A. Oh, since 1893, about forty-two years.

Q. 5. What kind of crown caps does the Cliquot Club use on its ginger ale?

A. Paper spot, the Crown Cork paper spot.

Q. 6. Where do you purchase it?

A. From Baltimore, the Crown Cork & Seal Company, Baltimore.

[fol. 563] Q. 7. I hand you a box marked Plaintiff's Exhibit 28, and I call your attention to the crowns therein;

will you state whether or not they compare, how they compare to the crowns that you are using, referring particularly to the dark color paper ones?

A. Those are the ones there that we are using.

Q. 8. The dark color?

A. The dark color.

Q. 9. Do you recall how long the Cliquot Club Company has been using these crowns of Plaintiff's Exhibit 28?

A. About late in 1929 that we got some of those and tried them out.

Q. 10. Why did you try out this type of crown, do you know?

A. The old cork, natural cork crown, got so it was dirty, dusty, and if the goods were put up any length of time it got soft, would not hold, caused a lot of leakers, also you got a corky, woody taste after it had been up for a certain length of time.

Q. 11. What success did you have with your tests on these crowns?

A. We had good, we had no corky flavor.

Q. 12. I am referring to Plaintiff's Exhibit 28, these paper spot crowns?

A. Yes.

Q. 13. How long did you test them?

A. We tested them for about six months before we began to use them, and when we opened up the goods they were in good shape, no bad flavor or odor, and plenty of gas.

Q. 14. As I recall, when I talked to you about a year or two ago, you had some bottles that had been there for some time since the time of the test, and you opened them; did you preserve those caps?

A. Yes, sir.

Q. 15. Have you got them with you?

A. Yes, sir.

[fol. 564] Q. 16. Will you produce them, please?

A. (Witness produces caps.)

Q. 17. What was the condition of the contents of the bottles which you opened which bore these caps you have produced?

A. There was plenty of gas, and the goods kept better than we ever had any goods keep before with the ordinary crowns.

Q. 18. When you say "ordinary crowns" you mean natural cork crowns?

A. Natural cork.

Q. 19. How long had these bottles been under test in storage?

A. They were put up in July, 1931, and opened in February, 1935.

Q. 20. And the contents were in perfect condition?

A. Perfect condition; every bottle among the three bottles.

Mr. Darby: I offer in evidence the three crowns produced by the witness.

(Marked Plaintiff's Exhibit 65 in evidence.)

Q. 21. What was the condition of the crown when it was opened?

A. Good.

Q. 22. Do you recall?

A. Good.

Q. 23. You particularly observed at my request the condition of the crowns when you opened them?

A. Just as good as it was when we put it on.

Q. 24. With the paper spot?

A. With the paper spot; all the difference was there was a groove in it where it fitted over the top of the bottle, which you could not help.

Q. 25. You were speaking of trouble you had with natural cork crowns; what did you do personally about these [fol. 565] troubles? Did you tell anybody you were having them?

A. Yes, I complained to the head officials and we tried to blow the dust out with a machine that we bought.

Q. 26. You bought special equipment for getting the dust out of the natural cork crowns?

A. Yes, a machine made in Boston. And then we tried to wash them. Then we bought an equipment to go on the crown chute to see if we could suck the dust out, but that wasn't successful.

Q. 27. These natural cork crowns with which you were having trouble were purchased from whom?

A. Crown Cork & Seal Company. We tried some from New Process, also a number of years ago from the Armstrong Cork Company.

Q. 28. Did you have any better success with the crowns from these other companies?

A. Not a bit, no, sir.

Q. 29. When you complained to the officials of your company did you get any effective response during that period you were having trouble?

A. Well, there was nothing they could do, we could not get anything different at that time.

Q. 39. You wanted something different but could not get it?

A. Wanted something different.

Cross-examination.

By Mr. Warland:

X Q. 40. I understand that your factory is at Millis, Massachusetts?

A. Yes, sir.

X Q. 41. How long has it been there, has it always been at Millis, Massachusetts?

A. Always been at Millis, Massachusetts.

X Q. 42. And you have been in Millis Massachusetts, for how long?

A. I have lived there for around fifty years.

[fol. 566] X Q. 43. Did you know of a company there known by the name United Cork & Seal Company?

A. I do not quite understand.

X Q. 44. Did you know of a concern in Millis, called the United Cork & Seal Company?

A. Yes.

X Q. 45. And they were making center spot crowns, were they not?

A. I do not remember of their ever making any.

X Q. 46. You never went to their plant?

A. I never visited their plant.

X Q. 47. You are acquainted with Mr. McManus, aren't you?

A. I know Mr. McManus, yes.

X Q. 48. You met him when he was at Millis?

A. Yes, sir.

X Q. 49. About 1907, 1908 or 1909, something like that?

A. Yes.

X Q. 50. Do you know what he was doing there at the time?

A. Yes; he was with the United Cork & Seal Company.

X Q. 51. He was making bottle cap closures in those days for the United Cork & Seal Company?

A. Yes, sir.

X Q. 52. Didn't you ever hear of any center spots prior to those that you heard from the plaintiff?

A. No, sir, I never did.

X Q. 53. That is the first time you ever heard of a center spot of any kind?

A. Only tin center, aluminum center, tin center.

X Q. 54. You had known about those for a long while?

A. Yes, sir.

X Q. 55. Did you try those for ginger ale?

A. They are not satisfactory for ginger ale.

X Q. 56. Did you try them, I said?

A. No, sir.

[fol. 567] JOHN J. DARBY, recalled on behalf of the plaintiff, in rebuttal, having been sworn testified further as follows:

Direct examination.

By Mr. Scull:

Q. 98. Yesterday in your examination you referred to certain caps and said that you would produce them. Have you those caps now?

A. I have.

Q. 99. What are these caps?

A. In connection with the Warth-Lange Interference 60931, involving Claim 2 of the Lange patent No. 1,779,884, it became evident that the interference would be contested and I made a trip to Baltimore to ascertain more definite information than I previously had available as to the situation with respect to what the Crown Cork & Seal had previously done along the same lines. Since the interference had started it had changed in character considerably and only one claim remained—the claim speaks for itself—and that was Claim 2. I discussed that claim with Dr. Warth and tried my best to explain what it meant, and he made the remark that he doubted whether it was new. I asked him what he meant by that——

Mr. Warland: I object, your Honor.

The Court: Sustained.

The Witness: I discussed the matter with Dr. Warth and there was some conversation whether the subject matter of the interference as it then existed was new. In that con-
[fol. 568] nection he pulled from the drawer of his desk a box of caps. I recalled the incident very distinctly and the date was February 12, 1932. I asked him what the caps were and he said that he was pretty sure they were caps along the line that he had made many years before.

Mr. Warland: I object to Mr. Warth's testimony being given through this witness, your Honor.

The Court: Yes, it is all hearsay. Objection sustained.

The Witness: I took these caps in order to ascertain whether they corresponded with the subject matter of the interference, and I had tests run and I found that they did. The tests as they were run and the caps were put in this original box and here are the papers and the caps that were tested. I then made an effort to ascertain whether the Crown Cork & Seal Company could prove sales; I could find no conclusive proof which convinced me that we could prove actual commercial use. Therefore, I did nothing more than put this aside with this evidence, and I let the matter continue. These are the caps and these are the reports.

Mr. Scull: I offer in evidence the box of caps and the papers in the box.

(Marked Plaintiff's Exhibit 66 in evidence.)

Q. 100. Now, you were asked also yesterday as to the dates or the date of conception alleged in the preliminary
[fol. 569] statement in 1915, and your connection with that. What explanation have you in connection with such allegation?

A. Prior to the preparing of the preliminary statement I discussed the matter with Dr. Warth and it also may have been with others. I ascertained that as early as 1915 in connection with the manufacture of materials such as I have here, which is Exhibit 61, certain experimental tests had been run which, instead of using an ordinary glue adhesive, there had been used gutta percha dissolved in carbon tetrachlorate. I found a quite large number of these caps had been made up.

Mr. Warland: I object to what he learned.

The Witness: On the basis of that I prepared the statement.

Mr. Scull: Mr. Warland, you asked him what was the basis for his statement yesterday.

Mr. Warland: I asked him if he put in a statement, and he said he did.

The Court: He said he signed the statement and he signed it on the basis of information. That is as far as you can go. What he learned is not evidence.

Mr. Warland: I move that it be stricken out.

The Court: That is what he has been telling right along. I let him say that he prepared that statement on information, but that is as far as you can go.

Mr. Scull: Can't I bring out the information on which he prepared it?

The Court: No. He can say who he received the informa-
[fol. 570] tion from, but he is not entitled to say what the information was. I let him say that he prepared it on information simply to differentiate from telling us that he prepared it on his own knowledge. He may state the source of information, but not what the information was.

Cross-examination.

By Mr. Warland:

X Q. 101. As I understand it, the substance of your testimony is that the issue of this interference No. 60931 was too broad is that right?

A. Do you want my opinion on the matter?

X Q. 102. You said yesterday it covered a lot of things and you thought it was too broad.

A. At that time I reached that conclusion on the basis of investigation that I had made.

X Q. 103. That was your opinion, that the issue was too broad to cover the actual subject of the investigation?

A. I felt so at that time, but I had no proof on which I would want to go into court and rely solely on. I had nothing but that box of caps from Dr. Warth's desk.

X Q. 104. Yet, despite that fact, that that issue, in your judgment was too broad, you fought that interference all the way through the Patent Office and fought it through the court here to get possession of Lange's testimony, and then you got this patent 1,899,783 issued as a result of that interference?

A. That is not a correct statement.

X Q. 105. It is in the record. Doesn't the record show that you asked certain things be allowed because of the decision of the Board?

[fol. 571] A. We never took out claims in any way corresponding, in my judgment, to the claims in that interference. We abandoned the claim. Furthermore, we did not fight the interference through the Patent Office. After Lange had taken his testimony we made every effort that we could to have it filed in the Patent Office as a matter of public record.

X Q. 106. And in spite of that effort you had a judgment by default taken?

A. At that time we were trying to have Lange file his testimony.

X Q. 107. Please answer my question. Didn't you take a judgment by default against Warth in the Patent Office?

A. To conclude the interference.

X Q. 108. And then patent was issued as a result of that decision?

A. No.

X Q. 109. This application No. 360,895, on which this interference occurred, was that abandoned altogether?

A. I would have to look at the file of the application to recall it. I cannot tell you that the entire application was abandoned, but I know the subject matter was.

X Q. 110. Well, here is the file.

A. I believe that that application was abandoned. (Witness having examined file.)

X Q. 111. Don't you know?

A. Yes, it would indicate it, and it is my recollection that it was.

X Q. 112. Well, is that interference one of the litigations that is mentioned in this advertising that I showed you yesterday?

The Court: Didn't you ask him that yesterday?

Mr. Warland: Yes, I did, your Honor.

The Witness: I really don't know.

[fol. 572] X Q. 113. Now, what was in Lange's testimony that caused you to make an affidavit stating that your prior affidavit was wrong?

A. As I told you yesterday, I received that testimony perhaps a year and a half ago, and it came in a brown envelope and was put on my desk and I have never read it

since. Now I will be glad to read it and tell you, if you will permit me the time.

X Q. 114. You thought it was of sufficient interest to dissolve the interference?

A. I did indeed.

X Q. 115. And you made a motion to dissolve the interference?

A. After Lange made a motion, supplemented by these caps, it convinced me that my client should not spend more money on that subject.

X Q. 116. And was the subject matter any different than that statement made by Warth where he said that it had been used commercially in 1916?

A. I drew a distinction between the two. I am not permitted to explain what we had in mind as to that statement. I know there were a considerable number of caps made in accordance with what we had in mind.

X Q. 117. Warth says in his preliminary statement that the invention was reduced to practice by manufacture and use of the material of the character defined in each claim on or about the 1st day of June, 1915, at Baltimore, Maryland. Material of the character defined in each claim has been made in large quantities since April of 1915.

A. That was based on information given to me at that time.

X Q. 118. Why did you try to get out a patent on a subject that had been in commercial use since 1915?

A. I did not know that; I had no information that any-[fol. 573] thing of the nature had been in commercial use until 1932, when I made the test in Dr. Warth's laboratories. It was a matter of distinct surprise to me.

X Q. 119. You said in your affidavit I showed you yesterday that Lange's testimony was a great surprise to you.

A. It was.

X Q. 120. Did Lange's testimony show any greater use or more use than was shown in the preliminary statement?

A. Yes, because Lange admitted—I am speaking from recollection—extensive commercial use of the things that I did not know about.

X Q. 121. What were those things that were used commercially? They were what, varnished paper?

A. Do you want me to testify from recollection or will you let me read the testimony to refresh my recollection?

X Q. 123. Will you look at that testimony. What exhibit number is that?

A. Defendant's Exhibit TTTT. Do you wish me to read that testimony through?

X Q. 124. Sufficiently to answer my question, what was it that caused you to move for a dissolution of interference over the statements contained in Warth's preliminary statement?

The Court: Suppose you ask him anything else you have to ask him, and let him do that during the lunch hour.

X Q. 125. Will you glance through that sufficiently to answer the question after luncheon?

A. I will be very glad to.

X Q. 126. Coming back for a moment to this interference No. 66,201, Warth vs. Johnson——

A. May I have the record of it, please?

[fol. 574] X Q. 127. Have you been able to produce the original assignment had from Johnson to Crown Cork & Seal Company?

A. Frankly, I forgot to ask Mr. Fusting last night. I will see him at lunch time; he is not in the court room now, and I will be very glad to do it.

X Q. 128. Will you please see that it is produced before the trial is over?

A. I certainly will.

X Q. 130. You made an affidavit in this interference of Warth vs. Johnson, 66,201, dated April 2, 1934, didn't you?

A. That is correct.

X Q. 131. You state in that affidavit that you have been instructed by the Crown Cork & Seal Company to bring suit against Ferdinand Gutmann & Company.

A. Right.

X Q. 132. "And that one of the patents to be included in said suit is reissue 19,117, Warth," and you also said that "The Warth application in interference is divisional with respect to the said reissue patent 19,117, and that it is therefore desirable to include in the prospective suit the subject matter in interference, as well as the said reissue patent.

"That if priority is awarded Warth in this interference, as deponent believes should be done, the patent resulting from the Warth application in interference will be included in said suit.

"That the said Ferdinand Gutmann & Company is, in deponent's judgment, infringing the rights of Warth's assignee under the said reissue patent, and that the said assignee is being seriously damaged by the use of the method covered by said patent, as well as use by the said Ferdinand Gutmann & Company of the method involved in interference. [fol. 575] "That deponent has been instructed by the assignee of the Warth application to expedite in every way possible the issuance of the patent on the Warth application in interference, and will do so not only throughout this interference but in any subsequent ex parte prosecution of the Warth application."

Now at that time the Crown Cork & Seal Company owned the Johnson patent by assignment which had the same three claims which are in this patent 1,967,195, didn't it?

A. What is the date of that affidavit?

X Q. 133. April 2, 1934.

A. That is correct.

X Q. 134. Why didn't you sue Gutmann under the Johnson patent 1,872,578 which had the same method claims in issue as are in the patent 1,967,195?

A. The reason is that when the interference was declared with Johnson, as I said yesterday, I discussed the matter with Johnson's counsel after an agreement had been reached to settle, and Mr. Seifert and I felt that——

The Court: We went over that yesterday.

Mr. Warland: I asked him why he didn't sue.

The Court: He isn't asking you that, he is only asking you why you didn't sue Gutmann on that patent.

The Witness: Because the Patent Office had not yet determined whether these claims should remain in the Johnson patent or the other patent.

X Q. 135. But you had the claims in the Johnson patent, you owned the Johnson patent; what difference did it make [fol. 576] what the Patent Office said, as long as you owned the patent?

A. I felt there should not be any more litigation than necessary, and that the question should be determined at the time we went into court as to where the claims properly belonged.

X Q. 137. Well, you got that settled when you got an assignment from Johnson?

A. No, sir, we did not.

The Court: He told you that the assignment was held in escrow in the Patent Office, and they left it to the Patent Office to determine the question. That was his testimony yesterday.

X Q. 138. Was there any reference anywhere in these interference proceedings or in the Johnson application for patent 1,967,195 which shows that this assignment was left in escrow or that the Patent Office had knowledge of it?

A. No, but——

X Q. 139. Just answer yes or no, there was none?

A. But Mr. Seifert, Johnson's attorney, and I, personally took the responsibility of informing everyone in the Patent Office who had anything to do with the matter of the precise situation.

X Q. 140. But there is nothing anywhere in the record to show that?

A. There is not.

X Q. 141. Mr. Seifert did not file a brief on behalf of Johnson at the final hearing?

A. I do not remember; the record will show that.

X Q. 142. The record shows that he did not, that was all arranged between you and Mr. Seifert, to get this priority [fol. 577] awarded to Warth, so you could get the date of January 7, 1927, was it not?

A. That is not correct. We submitted the matter to the Examiner of Interferences, and stated it was a matter of utter indifference where the claims went, as long as they went where they belonged, because we owned both patents, both the application and the patent.

Met pursuant to recess at 2 p. m.; present as before.

JOHN J. DARBY, resumed the stand.

Cross-examination.

By Mr. Warland continued:

Mr. Warland: I offer in evidence an affidavit of Mr. Darby, dated April 2, 1934, in Interference No. 66,201.

(Marked Defendant's Exhibit DDDDD in evidence.)

X Q. 143. When you made this settlement with Mr. Johnson, you knew, of course, of the preliminary statement of Johnson and the dates alleged therein?

A. I did.

Mr. Warland: I offer in evidence the preliminary statement of Johnson in Interference No. 66,201.

(Marked Defendant's Exhibit EEEEE in evidence.)

X Q. 144. Have you had an opportunity at lunch to glance through that Lange testimony?

[fol. 578] A. I have done the best I can with the 165 pages of it.

X Q. 145. Well, briefly, what material or what structure is shown there? What was the testimony that caused you to move to dissolve?

A. As I said before, before Lange took this testimony I had located those caps which showed that we had in our possession caps made of black alkali paper, as it was then known, united by Burgundy pitch to the cork, and of course was always made in strip form, so my entire cross examination of Mr. Lange was directed, as the testimony shows, to the only other limitation in the claim in interference which we could not prove, namely, the precise character of the varnish on the paper, because the Crown Cork & Seal Company was buying its varnish from the other side, and we had no way of knowing what Lange had put in the varnish. The record finally shows at the end Lange admitted—first he produced a letter which showed that at least for four years he had been offering to the trade a paper with an alcohol resistance up to 40 per cent., and had sold it commercially to cap manufacturers and it was used in this way. He admitted furthermore that he had been in the Crown Cork & Seal Company's plant and had seen the operations that I had been informed of, including the uniting of the paper to the Burgundy pitch, which is a waterproof adhesive, and finally admitted that he had tested himself a large number of other papers that he had sold for five or six years, and found their resistance to be at least 10 per cent. The claim had originally been interpreted to call for resistance to alcohol in some way, and that is what my ex-

[fol. 579] amination consisted mostly of and I had been out to Pittsburgh, and I had found at Pittsburgh, because I made a special trip out there to the Pittsburgh Insulator

Company to find out the nature of the varnish on the paper that they were furnishing the Crown Cork & Seal Company. That trip was made at about that same time.

X Q. 146. As I understand you, testimony as to the character of the paper and the varnish caused you to file a motion to dissolve?

A. Absolutely, because we had already every other element.

X Q. 147. And then when he would not file the testimony——

A. We tried to compel him to file it.

ALBIN H. WARTH, called as a witness on behalf of the plaintiff, in rebuttal having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside?

A. Albin H. Warth, Baltimore, Maryland.

Q. 2. You are the Albin H. Warth who was mentioned as a patentee in some of the patents here in suit, are you not?

A. Yes.

Q. 3. You are employed by the Crown Cork & Seal Company, are you?

A. I was employed by the Crown Cork & Seal Company in May, 1916.

Q. 4. And you have been continuously in their employ?

A. And its predecessors, and I became the chemical director around 1917. I might say that my education was [fol. 580] obtained at Columbia University, from which I received the degree of Bachelor of Science in 1907. I am a Fellow of the American Institute of Chemists, and I am also a Fellow of the American Association for the Advancement of Science.

Q. 5. Subsequent to your graduation just what positions did you have?

A. Subsequently to my graduation I took a position with the Lackawanna Steel Company at Buffalo, New York.

Q. 6. As a chemist?

A. As a chemist. Following that I took a position with the Proctor & Gamble Company at Port Ivory, Staten

Island, as a chemist. Then I became the chief chemist of J. L. Hopkins & Company, wholesale druggists. Following that I went with the General Electric Company at Lynn, Massachusetts, engaging there in research work. After leaving the General Electric Company I became chief chemist of the Celluloid Corporation at Newark, New Jersey. From there I went to the Crown Cork & Seal Company, where I have been since then.

Q. 7. Now, just briefly what have been your duties while you were employed by the plaintiffs here.

A. Well, since I have been with the Crown Cork & Seal Company I have come in contact with every phase of the industry——.

The Court: You mean with the plaintiff and its predecessors?

Q. 8. The plaintiff and its predecessors.

A. Every phase of the industry. I have had problems in connection with the lacquers that are used for lacquering [fol. 581] the tin for the caps, the binders for the composition cork, the assembling of the component parts such as the shell and the cork discs, and the adhesive used for this purpose, also with facing materials, including the facing materials that are used in the spot crowns. I have also had pretty intimate touch with the bottling industry, the beverage industry, and the uses which are made of these caps.

Q. 9. In your laboratory do you make tests for the utility of the various products of the Crown Cork & Seal Company?

A. Yes, we have quite a large laboratory organization for that purpose.

Q. 10. When did you first conceive the idea of using a nitrocellulose adhesive for spot crowns?

A. I first conceived the idea about 1926.

Q. 11. And what, if anything, did you do at that time about that?

A. Well, I might say that in my experience with the Celluloid Corporation, where I had been continually dealing with nitrocellulose and nitrocellulose lacquers and so forth, it was sort of an ambition of mine to produce a thermoplastic coating material for tin-foil that would be superior to gutta percha, which gutta percha is not entirely satisfactory. And my idea was to combine nitrocellulose with resin.

To do this I made up, oh, a number of resin solutions, I particularly recall using Dammar gum. They were natural resins. I also used gum elemi and sandarac, and copal and various gums, but I found it was a problem there of getting the proper proportions of the gum and nitrocellulose. Many of these experiments were failures, for instance, because of the incompatibility of the gums and nitro- [fol. 582] cellulose, they would not mix. Some of them would mix, but would separate out overnight. However, I got certain mixtures that were seemingly satisfactory, that I applied to foil, coated on foil, and then I would take these strips of foil and bring these down generally and give them to Mr. Goebel to run on the machine to make a small number of crowns. But the resultant spot crowns were not entirely satisfactory. In other words, I mean that they weren't sufficiently better than gutta percha to warrant going into the manufacture at that time unless I could make a still further improvement.

Q. 12. Did you turn to anybody else for material in connection with these experiments?

A. Yes, I recall very distinctly in 1926 contacting a man by the name of Fisher who was with the du Pont Company. Fisher came down there, and I talked about what I wanted, and he supplied various samples. Sometimes, these samples were used as such, and I did not get quite satisfactory results and I would mix in a little more nitrocellulose or a little bit more resin to see whether I could improve the result, and I got at least good enough results to indicate that if the material was sufficiently improved it would be eventually successful.

Q. 13. Now what was the idea of combining nitrocellulose and resin, why did you have that in mind?

A. In the first place in such a coating material or cement I wanted a resin and then I wanted nitrocellulose as a constituent and then I wanted this combined material to be thermoplastic. The reason I wanted nitrocellulose was that I realized that nitrocellulose had a good film-forming [fol. 583] characteristic and it was necessary to have a material which you could spread on the foil in a very thin film, which upon drying would be rendered tacky when in contact with heat and also it was necessary for me to have a material, a coating material, that would enable me to wind up a spool of this tin-foil, otherwise it was useless.

Q. 14. Now is nitrocellulose itself a thermoplastic?

A. Nitrocellulose itself is not a thermoplastic, and I realized that very early because when I coated foil with nitrocellulose and tried it, it was absolutely devoid of any thermoplastic adhesive qualities.

Q. 15. On the other hand, the gums are thermoplastic?

A. On the other hand, the gums are.

Q. 16. Now what do you mean by film-forming characteristics of nitrocellulose?

A. I mean that the nitrocellulose imparts a sort of a horny characteristic to the material that sort of kills the tackiness. Now when you use gum alone, which I tried out in 1926 or prior, the film would became very, very brittle and fracture off and then I tried to improve that gum by adding amounts of certain vegetable oils to sort of plasticize the gum. Well, I could improve my coating and I made a perfectly good-looking spot crown, but when I saw those crowns made for three months and I happened to go back to my samples I found there was not a sufficient amount of stick between the foil and the cork to warrant their adoption and therefore I needed something that was much more permanent.

Q. 17. It was for that purpose that you turned to nitrocellulose?

A. Yes.

[fol. 584] The Court: You used that as a base?

The Witness: I used the gum as a base and nitrocellulose in addition to it to form this film-forming characteristic.

Q. 18. I show you a letter which is Exhibit 55 and I ask you whether you wrote that letter and on the date that appears thereon?

A. Yes, I did. The date is November 19, 1926, and the letter is addressed to the superintendent of production machinery, G. Goebel.

Q. 19. And that letter refers to a product made by E. I. du Pont and which is suited for adhesive purposes and the further statement that this particular material has a nitrocellulose and gum base and is already thinned to a consistency that makes it easy to apply to paper or other material. Prior to that date, that is the date on this letter,

had you talked to Mr, Goebel about nitrocellulose and gum base material?

A. Yes, I talked to him and also showed him samples, as I stated before, and he ran some on the machine. He knew what I had. He said to me, "Boss"——

Q. 20. Never mind, at any rate you wrote him this letter?

A. The idea was to get this in commercial quantities, material of this kind.

Q. 21. And did you get this material that is referred to in Exhibit 55 and try it?

A. Yes, we did.

Q. 22. What was the result?

A. Well, we did not do very much with it. It was not as good as gutta percha and I abandoned that to continue gutta percha to adhere to the aluminum foil.

Q. 23. When did you next take up this adhesive of nitro- [fol. 585] cellulose and gum or resin for sticking spots to crowns, corks?

A. You mean take it up from the standpoint of thought or experimental work or conversation?

Q. 24. Either way, what did you do after 1926?

A. At various times when Mr. Foley called from the du Pont Company I asked for samples, whether they had anything better than what I had submitted to me before. I did not do anything active in the laboratory way. I had spoken to Mr. McManus about this nitrocellulose and resin thermoplastic adhesive but I did not do anything very active until January of 1932.

Q. 25. Now in the meantime had there been any activity in connection with your gutta percha sticking of spots?

A. Yes, great activity, especially when we got these orders from Anheuser-Busch. I went out to Anheuser-Busch in the latter part of 1926 and I sold them the idea of using an aluminum spot with a composition cork as a substitute for natural cork with which we were having quite a lot of trouble and we had to take back carloads of their natural cork to spot with aluminum. Then we were being faced with large production orders. Why, it seemed a practical thing from my viewpoint to combine this gutta percha to aluminum foil so as to have a one-strip material instead of feeding separate tissue and foil into the machine to be ultimately combined, and Mr. Goebel went ahead and built

such a machine and I remember that machine was in operation some time in 1927, early in 1927. The result of that combination was we were immediately able to step up our production and also able to do away with an operator at the machine at each machine.

[fol. 586] Q. 26. Now continuing with this nitrocellulose, when did you first get some of this 4620 about which there has been testimony in this case?

A. Mr. Foley came into my office very early in January, I think it was in the end of the first week in January, with a sample.

Q. 27. What year?

A. 1932. He said, "I have something here which I think will greatly interest you. It may not prove good for your purpose but perhaps you will find it well worth trying out." I said, "I will try it out right away."

Q. 28. Did he tell you what it was, did he tell you the general composition?

A. He told me it was a nitrocellulose cement.

Q. 29. And had you ever talked to him before about your desire for that kind of a cement?

A. Oh, frequently.

Q. 30. Go ahead.

A. Well, he turned in this sample of material, I took it out in the laboratory, and with the aid of Miss Stover——

Q. 31. Miss Stover is your assistant?

A. My secretary; we coated some foil, and I didn't coat very much of it myself, but she coated quite a lot of it and dried it. The first lot I believe we air-dried; we didn't heat-dry it, we dried it in the air and took it down to the machine, Miss Stover took it down to the machine, and after an hour or less brought the sample of the finished crowns up, and we looked over those crowns. They looked really good, and we started immediately on our bottling test.

I might say right here we never go into anything commercially without making rather extensive bottling tests; we have found that necessary by experience.

[fol. 587] Q. 32. And those bottling tests are on various kinds of liquid?

A. All of this work is done on the more difficult, that is, the highly charged carbonated liquid. We generally use Budweiser beer, which is pasteurized in the bottle afterward, where it gets a pressure of at least 75 pounds in the

bottle. And we use the highly charged waters, such as White Rock, and we use one of the standard pale dry ginger ales, which has a high pressure to it. And we store those bottles away, and it is customary to take a couple of bottles out every two weeks, and then in another week, and so on, to observe the results.

Q. 33. How long do you ordinarily carry on such experiments, six months, a year, two years, or what?

A. The experiments on beer are generally conducted for about a little over three months, and those on pale ginger ale about six months, and the charged water from six months to a year.

Q. 34. When you coated the material and made these tests did you coat anything else but foil?

A. Yes, we coated a good many materials through that year. We coated, for instance, we coated spot crown paper, that is a special varnished paper, and I believe we coated a shellac paper, we coated another paper, I have forgotten the name, something submitted by C. C. Stewart of Philadelphia, and there were several others.

Q. 35. And the tests that you started on ginger ale were made with metal-foil or with paper?

A. With—I do not recall.

Q. 36. I show you a number of letters headed "M. [fol. 588] Stover," addressed to Dr. Warth, dated January 20, 1932, April 12, 1932, April 20, 1932, August 19, 1932, a second one dated August 19, 1932, a letter dated August 25, 1932, and one dated October 20, 1932. Will you state first if you recognize those letters, and if so, just what are they?

A. All these letters relate to bottling tests that we conducted throughout the year of 1932, using this 4620 cement.

Q. 37. That is the nitrocellulose resin cement?

A. Yes. There is one letter here of April 20th, that is a letter that concerns costs. It has my original figures on it in figuring out the whole cost of the proposition.

Q. 38. That is, the cost of using this particular cement?

A. Yes.

Mr. Scull: I offer those letters in evidence and ask that photostatic copies be substituted for the originals.

(Marked Plaintiff's Exhibit 67 in evidence.)

Q. 39. Do those letters in Plaintiff's Exhibit 67 represent all the tests that were made during 1932?

A. No, they do not. They are largely memorandums that were made because, while Miss Stover was pretty careful to make her records, in many of the observations that I made I made no record except a mental one.

Q. 40. I show you a carbon copy of a letter signed A. H. Warth, dated May 11, 1932, addressed to J. W. Cleaveland of the duPont Company at Parlin, New Jersey. Did you write that letter and on the date which appears thereon?

A. Yes.

[fol. 589] Q. 41. By the way, what is your custom so far as the carbon copies of letters are concerned, in so far as signing them?

A. Well, I always sign the carbon copy right at the time that I sign the original. Of course, that signature would be on the date that appears thereon.

Q. 42. I note in that letter of May 11th you say, "The 4620 thermoplastic cement is active." What do you mean by thermoplastic cement?

A. The 4620.

Q. 43. Well——

A. Nitrocellulose and resin is thermoplastic cement.

Q. 44. What do you mean by saying that it is active?

A. By "active" I mean it is active as an investigation in the laboratory.

Mr. Scull: I offer that letter in evidence.

(Marked Plaintiff's Exhibit 68 in evidence.)

Mr. Scull: And I ask that a photostatic copy be substituted for the original.

Q. 45. Now, there has been some testimony here in reference——

A. By the way, Mr. Scull, I might say that I saw in that letter a little pencil mark under the word "active." I did not put that mark on there; that must have been put on by one of the attorneys.

Q. 46. I think probably it was. Now, there has been some testimony here as to a visit which Mr. Goebel and yourself made to the Waldron Company in New Brunswick, New

Jersey, in connection with coating machinery. Do you remember those visits?

A. Yes, I remember those visits.

[fol. 590] Q. 47. Do you remember when the first one was made?

A. Well, I couldn't recall the exact date; it was somewhere around April or May of 1933.

Q. 48. I show you a letter dated May 9, 1933, signed by A. H. Warth, addressed to John Waldron Company; does that refresh your recollection?

A. That is 1933.

Q. 49. Yes.

A. Yes.

Q. 50. This refers, does it, to the visit?

A. The contemplated visit within a week.

Mr. Scull: I offer this in evidence as a plaintiff's exhibit and I ask that a photostatic copy be substituted for the original.

(Marked Plaintiff's Exhibit 69 in evidence.)

Q. 51. Prior to this visit some time in May of 1933 to the Waldron Company what had been the results of the tests you had conducted on the use of this 4620 thermoplastic adhesive?

A. They were very satisfactory. As I stated before this strip material, this aluminum foil was coated in very large lengths in our laboratory and it was taken to the machine and put through the spotting machines. In 1933, I might say that my bottling tests were completed at the end of 1932 and early in 1933 I went to Mr. McManus to tell him that I was figuring on going ahead with equipment to coat this foil on a very large scale and in fact I asked him for $8000 and he said right offhand go ahead.

Q. 52. He was familiar with the results of the tests?

A. He was familiar with the results of the tests.

[fol. 591] Q. 53. And this $8000 that you had in mind was for coating machines?

A. The contemplated coating machines. I had not seen them yet.

Q. 54. And that size appropriation you assumed was to give you a coating machine with what capacity in reference to your spot production at that time?

A. Well, to give us a capacity of, oh I figure about a

carload a day with normal operation of the equipment.

Q. 55. That is to say you were really going on a very large scale?

A. A carload of spots per day, yes.

Q. 56. Now, the Waldron Company I understand is the maker of coating machinery?

A. Yes. I might say that we had investigated the market and I came to the conclusion that the John Waldron Company were the logical people to go to.

Q. 57. Did they have a machine that could be adapted for your purposes?

A. They had a machine which was adapted for our purposes and when we went over to run our experiment why everything over there was really satisfactory except the winding equipment.

Q. 58. There has been some testimony here about the width of foil that could be handled, do you remember anything about that?

A. I remember the foil that we had in stock I believe was too wide and we had to have a foil over there something like 17 inches wide to run through that equipment, so we were delayed a little bit in making these tests because we had to wait until the Aluminum Foil Company could ship the foil that we had ordered.

Q. 59. Now, this first visit to the Waldron Company, the foil was coated I understand with 4620?

[fol. 592] A. Yes, the foil was coated. I went over there and I supervised the time of travel and the heat required and the thickness desired. It was a sort of an experimental run that was made of one thickness and then another thickness and I think one or two trial temperatures and afterwards we loaded up all this wound foil and brought it back to Baltimore.

Q. 60. And did you make spots with them?

A. We did make spots with them. I might say that we had some trouble. Every time we changed the thickness of the coating we would have to stop the machine and then there would be quite a large width of foil uncoated and when we got the wound foil down in Baltimore and put it in the machine it would produce spot crowns for a number of gross and then there was no thermoplastic on the foil so we needed to get some more material and we made another visit for that purpose.

Q. 61. I show you a letter dated May 25, 1933, signed A. H. Warth addressed to John Waldron Company, and I ask you if you wrote that letter and on the date which appears thereon?

A. Yes.

Mr. Scull: I offer this letter in evidence as a plaintiff's exhibit, and I ask that a photostatic copy be marked.

(Marked Plaintiff's Exhibit 70 in evidence.)

Q. 62. Now, this letter refers to a possible second trip which you and Mr. Goebel were to make to the Waldron Company. Did you make such a trip subsequent to May 25th of 1933?

A. Yes.

[fol. 593] Q. 63. What did you do then?

A. We went right ahead with our next lot of foil because from our first experiment we knew just how much heat and what coating we wanted and we got a continuous length of foil and a very nice lot of material which was sent to Baltimore to be slit and we used that on the machine.

Q. 64. And was that all used in making spots?

A. You mean commercially?

Q. 65. I mean this material you brought back from the Waldron Company.

A. A very large part of it. We did mutilate some of that foil in our slitting because our slitting equipment was very crude.

Q. 66. I show you a letter dated June 23, 1933, and signed A. H. Warth and I ask you whether from that you can fix the approximate date at any rate of your second trip to the Waldron Company and second experiment there?

A. Yes, June 23, 1933.

Q. 67. And from this when would you say that the second experiment was carried on at the Waldron Company, approximately?

A. Oh, I would say within a week or two.

Mr. Scull: I offer this letter of June 23, 1933, in evidence and I ask that a photostatic copy be marked.

(Marked Plaintiff's Exhibit 71 in evidence.)

Q. 68. I show you what purports to be a memorandum dated July 28, 1933, signed A. H. Warth and I ask you

whether you wrote that memorandum on the date which appears thereon?

A. Yes, July 28, 1933.

[fol. 594] Q. 69. Now, what was the purpose of that memorandum?

A. Well, the purpose of that memorandum—I have all the data on this memorandum of the run we made on June 27, 1933, at the Waldron plant and I also have the estimated cost of coating figured down to the fraction of a cent per gross, using this 4620 material at a price of—well, I don't know, but I believe it was $2.50 a gallon.

Q. 70. What was the purpose of estimating this cost of coating?

A. Well, it has been our policy—it has been my policy to get up such memoranda for the use of our executives and our cost departments and I believe a copy of this went to Mr. Goebel the very day it was made.

Mr. Scull: I offer in evidence this memorandum dated July 28, 1933, and I ask that a photostatic copy be marked.

(Marked Plaintiff's Exhibit 72 in evidence.)

Q. 71. Now, there has been some evidence here as to the placing of an order with the Waldron Company some time in August for the coating machinery and its supplying of that coating machinery to the Crown Cork & Seal Company. I assume you had nothing to do with the actual ordering of the machine?

A. I had nothing to do with the actual ordering of the machinery.

Q. 72. And you do know however that after that the machine was installed and it was put into actual use?

A. It was put into use almost immediately on its installation. However, there were troubles to be overcome [fol. 595] that related to the rewinding and particularly the slitting. We were a long time getting our slitting machine ready.

Q. 73. That is, the slitting of this wide sheet?

A. The slitting of the wide sheet after it was coated.

Q. 74. Into a number of narrow ribbons?

A. Narrow ribbons which were spooled.

Q. 75. Has the Crown Cork & Seal Company continued to use this Waldron coating machine and the 4620 cement in large quantities since 1934, 1933 or 1934?

A. Yes, sir, the machine has been in operation day and night for a long time.

Q. 76. One of the patents here in suit refers to a paper spot crown in which the paper spot is a varnish coated hard high gloss paper adhered to the cork with a gutta percha adhesive. When did you conceive that idea?

A. Oh, I conceived that idea very clearly, I think 1925.

Q. 77. What is there that fixes that date?

A. Well, the date is pretty well fixed by a memorandum that I wrote that is entitled, "A Non-Metallic Spot Crown."

Q. 78. I show you Exhibit 56, and ask you if that is the memorandum to which you are referring?

A. Yes, that is the memorandum, July 13, 1921, is my mark on there—no, that is sort of torn here; I think it is 1925.

Q. 79. That is your signature on it, is it?

A. Yes; there is another copy of that.

Q. 80. It is dated down on the last page July 13, 1925; is that the date on which you wrote it?

A. Yes.

Q. 81. Now, after this memorandum of July 13th, what [fol. 596] did you do in connection with making a paper spot crown?

A. Can I tell the story?

Q. 82. Yes, briefly. Did you make such a paper spot crown?

A. Yes; that paper spot crown, the purpose of the paper spot crown was really as a substitute for a natural cork crown, and my interest in the thing, or my ambition, you might say, was to get a crown which would adequately seal high pressure acid-containing beverages such as ginger ale, and this was the thought that I had, but there were many problems to be worked out in connection with this paper until I could get a suitable paper for the purpose.

Q. 83. At that time the Crown Cork & Seal Company were making foil or metallic foil spots?

A. Tin spot crowns.

Q. 84. Would that be suitable for these beverages?

A. That would not be suitable, and they were making tin spots on natural cork, and they were expensive.

Q. 85. Were there any paper spot crowns on the market at that time, to your knowledge?

A. No, there were not; and I went into the libraries and consulted a lot of reference books to find out whether anything of that sort had ever been made, and to my knowledge nothing of that sort had been made.

Q. 86. When you say "made" you mean made commercially?

A. Commercially used, nor had any patents been taken out.

Q. 87. Had your attention been called to the difficulties that bottlers of ginger ales and similar materials were having with natural cork?

A. Yes; they had a considerable amount of trouble.

[fol. 597] Q. 88. I say, your attention had been called to that?

A. Yes.

Q. 89. In connection with salesmen's reports and things of that sort, you mean?

A. Very much the trouble that has been described on the witness stand by these witnesses this morning.

Q. 90. My understanding is that prior to 1925, the Crown Cork & Seal Company had made some kind of stoppers or caps which were lined with paper; is that right?

A. Yes; we made what we termed Axa crowns. They were different sizes, but one of the sizes was the same as the size of the beverage crown.

Q. 91. How were those——

A. They were a complete facing, generally over composition cork; sometimes the material was mounted on cardboard, and the mounting was done in strip form and then the material punched into discs and placed into crown shells.

Q. 92. That is, the entire——

A. Surface of the cork was covered by the facing material.

Q. 93. But all of the soft material inside was punched out at one operation and then inserted into the metal?

A. Yes, the process being the same as that for the regular Crown Cork assembly, cork feeding.

Q. 94. Are these crowns of Plaintiff's Exhibit 66 of the type you have just been describing?

A. Yes, that is the type as far as the liner is concerned, and as far as the size of the skirt. These have a little feature there that wasn't in all of our crowns.

Q. 95. You are referring to that little excrescence on the top of the metal?

A. Yes.

Q. 96. For what sort of liquids was this type of over-all [fol. 598] crowns used?

A. We used those for sealing ammonia water and bleaching water, sealing vinegar, cider, all with still liquors, not for anything that was carbonated.

Q. 97. No pressure?

A. No pressure.

Q. 98. What was the adhesive used in these over-all facings?

A. We used different adhesives at different times. We used, I think, in those particular ones, I believe Burgundy pitch was used.

Q. 99. Was there a varnish applied to it?

A. Varnish applied.

Q. 100. To the over-all facing or to the paper?

A. Oh, on varnished paper.

Q. 101. What kind of varnish was used?

A. Well, a varnish that was generally resistant to acids and to alcohol.

Q. 102. An asphalt base varnish, was that ever used?

A. Asphalt base varnish.

Q. 103. Was that ever used?

A. That was the usual varnish, but there were other types of paper used, there were certain yellow papers.

Q. 104. Were these over-all facings suitable for bottling of pressure beverages?

A. No.

Q. 105. Why not?

A. Well, because it will not hold the pressure without leakage.

Q. 106. For how long a period had you been investigating the matter of a suitable paper for resistance to liquids?

A. You mean for carbonated liquids?

Q. 107. Yes.

A. Well, I might say that back in 1920, there was in general use what was known as oil papers. These oil papers were used in the trade by bottle cap manufacturers, not necessarily crown cork manufacturers, and they had [fol. 599] quite an off taste, an odor, very odorous. And we made some paper ourselves and coated it with a varnish which was rather unique at that time in 1920. It consisted

of linseed oil and some chinawood oil and a plasticizing material, and we obtained a varnish coated paper which was tasteless and odorless. The paper stock was of the thinner variety that was in rather common use at that time.

Q. 108. I show you a letter dated August 30, 1920, signed A. A. Eisenberg and addressed to Mr. A. H. Warth. What do you know about that letter?

A. This is an original letter to me by Eisenberg of August 30th, and he says here, he speaks about this investigation that was started on August 5, 1920, to determine the method and materials for making this paper.

Q. 109. Who started him on this investigation?

A. I did. It has attached to it a piece of paper that we made way back in 1920, this varnished coated paper.

Q. 110. Did you receive that letter on or about the date that appears thereon?

A. Yes, I did.

Mr. Scull: I offer this letter in evidence.

(Marked Plaintiff's Exhibit 73 in evidence.)

The Court: Does your offer include the piece of paper?

Mr. Scull: Yes, your Honor.

Q. 111. This letter gives a formula which you used on this paper as boiled linseed oil, process varnish and golden black. Now, what was this process varnish?

[fol. 600] A. The process varnish that we used was the same varnish that we used for coating tin plate, for manufacturing bottle caps and that was a chinawood oil varnish, about 25 gallons of oil to 100 pounds.

Q. 112. What is this golden black?

A. It is gilsonited material of a plastic nature, pitch like.

Q. 113. Would there be a plasticizer in this particular combination?

A. Yes.

Q. 114. Would you say that this sample of paper that is attached to Exhibit 73 is unusual in its flexibility considering that it is 15 years of age?

A. Yes, it is unusual because I have gone through my records down there to get samples of this oil paper that were made some years ago by manufacturers and they are so brittle they all go to pieces.

Q. 115. Now, in developing these paper spots what kind of paper did you try?

A. We started out with, I believe, kraft paper and then express paper and paper of varying thicknesses. You see the first paper spots we made up, when they were put on the bottle and the crown was put on the paper would break and I was confronted with getting a stouter paper.

Q. 116. Why would the paper break, and in describing it, will you refer to figures on Exhibit 17. For instance this Standard non-spot crown or the McManus center spot crown.

A. The crown is placed on the bottle with 600 pounds of pressure and you can see if you have your spotting material here only half-way over the locking wing you can see from the shape of this there is a compression down there and there is a strain and tension on your spot material and the paper being material which will not give like tin-foil, [fol. 601] you must have a very strong paper. That is about 17 pounds pull right here at this point (indicating) in the periphery of the locking wing.

Q. 117. Why couldn't you overcome that by making the paper thicker?

A. I made the paper thicker. In fact, I jumped to a paper of about twice the thickness. In fact, I had my thickness so high, around .007, that I ran into great difficulty and that was that I got leakage, my crowns would not hold the 40 pounds pressure.

Q. 118. Why was that?

A. Simply because in trying to seal with material that was not very compressible or very flexible.

Q. 119. And, therefore, it would not conform to any——

A. Would not conform to any irregularities in the glass top of the bottle.

Q. 120. Did you finally find a paper that would meet these conditions?

A. Yes, I finally found a paper, I found that the thicknesses were rather limited, I could get a satisfactory result if I kept my varnished paper within a thickness of .005 and .006. .0055 I found to be the best thickness.

Q. 121. And what particular kind of paper?

A. I used a high gloss paper coated with a plasticized chinawood oil varnish a paper known as express paper. The paper had to be very dense and moisture-resistant, so far

as papers go, and one which would be smooth so as to give a dense—so that the varnish would have a continuous film and also I had to have a paper which was a special paper that was free from any dehydrated spots, in other words the paper had to be made up by the mill for the purpose.

Q. 122. That is as nearly uniform in its condition as possible throughout its entire surface?

[fol. 602] A. So there would not be any loose fibres because if there were loose fibres then the varnish coatings were not continuous and none of these varnish coatings are 100 per cent impervious to water. You must depend on the dense paper and then besides that on the gutta percha that underlies the paper to get that proofness against that water vapor that is required in the bottling of these highly carbonated beverages.

Q. 123. Did you use gutta percha as your adhesive?

A. I did and found it was very satisfactory in that respect.

Q. 124. That serves as this barrier that you have been telling us about, to back up the paper as well as the adhesive?

A. Yes.

Q. 125. I think you told us you settled on chinawood oil varnish.

A. Yes.

Q. 126. And that was because the linseed oil varnish had a taste and a flavor?

A. I could not make any headway on these linseed oil varnishes with high pressure beverages, the taste would go into the ginger ale and you simply could not use it.

Q. 127. This period you are telling us about is still 1925 and 1926?

A. No, this development covers over a period of years. I would say from 1925 to 1928, without any great degree of perfection until about 1928, so far as the sealing of high pressure beverages is concerned.

Q. 128. How about the actual making of the spots on the crowns; did you try that with paper?

A. You mean manufacturing them?

Q. 129. Yes.

A. Yes, I tried that rather early. I think I was able to get very good results when we were able to combine gutta [fol. 603] percha to the paper and I got a very satisfactory production from a machine standpoint.

Q. 130. That combining, I assume, occurred subsequent to this Anheuser-Busch incident in the latter part of '26 or '27, when Goebel first got up the combining machine?

A. Yes.

Q. 131. And you then combined——

A. A separate strip of tissue and varnished paper, for samples, sample lots.

Q. 132. Did that work successfully in the spotting machine?

A. Yes, that worked quite well.

Q. 133. Do you still do the combining of gutta percha with the paper in the plant at Baltimore?

A. No, we discontinued that;—I am not sure of the date, I think it was around 1928.

Q. 134. Now, after these experiments you have been telling us about, did you finally reach a paper spot crown with characteristics which you thought would make it commercially practicable?

A. Yes, in about 1928.

Q. 135. I show you an invoice dated April 13, 1927, for in typewriting 50, and then that number is crossed out in pencil and marked 10 gr. double lacquer Canax with glazed paper spot for Burroughs Bros., Balto., Md., and ask you if you know what that is?

A. Yes, I do know what this is.

Q. 136. What is the incident in connection with it?

A. This relates to an arrangement that we made with a Mr. LaCourse of the Burroughs Brothers Company of Baltimore, Maryland, relative to trying out some of these glazed paper spot crowns on citrate of magnesia. And I was talking to him about sending him down a sample lot of 50 gross, [fol. 604] and I guess the gentleman thought that was too many, and cut it down to 10 for experimental purposes.

Mr. Scull: First I offer in evidence this invoice as Exhibit 74.

(Marked Plaintiff's Exhibit 74 in evidence.)

Q. 137. Did you follow up that test?

A. Yes, I followed it up.

Q. 138. I show you a letter dated June 30, 1927, and signed A. H. Warth, and addressed to the Production Department, William Sutherland, Burroughs Brothers, Bal-

timore, Maryland. Did you write that letter and on the date which appears thereon?

A. Yes.

Q. 139. What is this letter, what was the reason for it?

A. Well, I think that Mr. LaCourse probably forgot about my great interest in the results of these glazed paper spot crowns, and I really wanted to know how they turned out.

Q. 140. This was to stir up the matter?

A. Yes, to stir up the matter.

Q. 141. I show you another letter dated July 1, 1927, and ask you whether you wrote that letter and on the date that appears thereon?

A. Yes, I wrote it on July 1, 1927.

Q. 142. Was the purpose of this letter the same as the previous one of June 30th, to stir up the matter of these outside tests?

A. Yes.

Q. 143. I note you say here, "We have one practical test on the outside, this was a sale of citrate of magnesia. The spot crown has proven satisfactory for that purpose." Had you ascertained by that time from the Burroughs Com-
[fol. 605] pany that it had been satisfactory?

A. Only in this way, that they evidently used them, I do not know positively, they must have used them. I hadn't heard anything to the contrary.

Q. 144. On these outside tests I assume that, just the same as in your laboratory tests, it really takes quite a little time to ascertain that the material is going to be entirely satisfactory?

A. Yes.

Mr. Scull: I offer these two letters, dated respectively June 30, 1927, and July 1, 1927, as one exhibit.

(Marked Plaintiff's Exhibit 75 in evidence.)

Q. 145. Was this shipment to Burroughs Brothers the first, so far as you know, of any test caps that were sent out of the plant at Baltimore?

A. Yes.

Q. 146. That is, of glazed paper spot crowns?

A. Yes.

Q. 147. I show you another invoice, or rather, I show you two invoices, one dated August 17, 1927, and the other dated

September 9, 1927, to Macomber Orchard Company, Sonora, California, one for 100 gross in pencil and one for 50 gross of gr. dl. No. 26 crowns glazed paper spot over Cerax. Do you know what those invoices relate to?

A. Yes, they relate to a small lot of crowns that were sent out to Macomber Orchard Company, Sonora, California, for the sealing of cider, uncarbonated cider.

Q. 148. Do you know whether or not this was a test lot that was cut out?

A. Yes, that was a test lot, a small lot.

[fol. 606] Q. 149. And those were the glazed paper spots you have been telling us about?

A. Yes.

Q. 150. Did you ever get any report from the Macomber Orchard Company about them?

A. No, I tried many times to get one from our sales department.

Q. 151. Do you know whether the Macomber Company ordered any paper spot crowns after that?

A. No, I think they ordered natural cork after that.

Mr. Scull: I offer these two invoices in evidence as one exhibit.

(Marked Plaintiff's Exhibit 76 in evidence.)

Q. 152. Who was the first big customer to whom you sold these glazed paper spots?

A. Hoffman Beverage Company of Newark, New Jersey.

Q. 153. Do they do a large business in ginger ale?

A. One of the largest manufacturers of that kind in the country.

Q. 154. In the country?

A. Yes.

Q. 155. I show you a bunch of invoices dated October 4, 1927, for 2,000 gross of glazed paper over Cerax crowns; another one dated May 17, 1928, for 6,000 gross of glazed paper Nepro; another one dated July 3, 1928, for some 4,200 gross glazed paper spot Nepro crowns; one dated April 12, 1928, for 1,000 gross of glazed paper Nepro crowns; and another one dated April 5, 1928, for 1250 gross, and another one of 5,000 gross. Are those typical of the way in which the Hoffman Company had been ordering these glazed paper spot crowns?

A. Yes.

[fol. 607] Q. 156. And the paper spot crowns that have been supplied on these Hoffman orders are the varnish express paper attached to the cork?

A. Composition cork.

Q. 157. The gutta percha that you have been telling us about that you developed in 1925 and 1926——

A. Yes.

Q. (Continuing.) —to your knowledge, after the Crown Cork & Seal paper spots appeared on the market, have other manufacturers been making and selling paper spot crowns?

A. Just as soon as we got them on the market they began to imitate.

Q. 158. You were here yesterday when Mr. Goebel was testifying about the success of the machines which were made for spotting crowns by the Crown Cork & Seal Company, were you not?

A. Yes.

Q. 159. And in which he told of first making the slide machine and its use and then the machine utilizing the two separate strips of foil and gutta percha and by finally combining of those two strips into one?

A. Yes.

Q. 160. Now, without taking you through all that what is your recollection as to those machines? Do you agree with Mr. Goebel as to what he said as to them?

A. Yes.

Q. 161. How did you come to get up this first machine after the slide machine—what was the reason, what was wrong with the slide machine?

A. In 1924?

Q. 162. 1924 or 1925, whenever it was.

A. The slide machine gave very poor production. The slide machine as I recall only operated at a speed of about 60—produced about 60 caps a minute and they would be [fol. 608] down sometimes for days and mechanics would be repairing them and they were very, very unsatisfactory. In other words we had three machines and there was always a lame duck. I might say I had an ambition to run other materials than tin-foil but those slide machines would have never done for the purpose.

Q. 163. When you say other material you mean such as paper?

A. Such as paper and aluminum foil and various coatings.

Q. 164. You are the patentee of patent No. 1,788,260 which is the original of the reissue patent No. 19,117 in suit, aren't you?

A. Yes.

Q. 165. When you received that original patent did you read it?

A. Yes.

Q. 166. Are you familiar with the patent claims or their interpretation?

A. No, I leave that to the patent attorneys.

Q. 167. Will you please tell us the circumstances under which this reissue came to be applied for so far as you are concerned?

A. I do not think I can properly answer that, that was a matter that was also left to the attorneys.

Q. 168. Did you have any discussion with Mr. Darby in reference to the spotting machine in connection with this original patent?

A. Well, I do recall saying to Mr. Darby that I noticed in one of the claims of one of my patents there was no reference to the cooling dial, cooling the spots after they had been assembled with the post heater and I told him I thought that was a matter that should be covered.

Q. 169. Where did that conversation take place?

A. It was down at the Crown Cork & Seal plant, when we were looking over—I don't recall just where, but the [fol. 609] Crown Cork & Seal plant at Baltimore, it may have been in the office or it may have been in the plant.

Q. 170. Do you remember roughly how long it was after that before you signed your application for reissue, was it a long time or a short time?

A. It seems to me it was a short time.

Q. 171. In the original specification forming part of the File Wrapper of patent 1,788,260, which is Defendant's Exhibit III, at page 5 I find this statement, "It may be desirable to secure the metal foil spot in position prior to the heating and pressure steps sufficiently to prevent dislodgement of the spot during any interval between the assembling and final sticking. This may be accomplished for example by pre-heating the assembled crown to soften the coating as soon as the metal foil spot is deposited, or the coating may

be softened by moistening slightly with a solvent such as benzol. In either case the coating becomes tacky enough to hold the metal spot from getting out of position during the ordinary passage through the assembling apparatus." I am particularly interested in that sentence "or the coating may be softened by moistening slightly with solvent such as benzol." Did you ever do that?

A. Yes, I tried out some gutta percha and foil, moistening the gutta percha with a sort of felt or sponge which was rather wet with benzol and I produced crowns that way but the trouble was that I could not control the amount of benzol and I would get too much of it on and it resulted in the gumming of the punch and therefore I thought that method was not practical from a commercial standpoint.

[fol. 610] Q. 172. But it would be possible however to make a few crowns that way?

A. Oh, yes.

Q. 173. And in that event you would not use heat?

A. You would not use heat.

X Q. 174. In other words, supposing we were using a combination strip; if we moisten the surface with benzol, that would make it tacky—the surface of the gutta percha?

A. Benzol or a suitable organic solvent material.

Q. 175. Then if the spot were cut out of that and applied to the crown, the gutta percha might be sticky enough to stick to the crown?

A. Yes.

Q. 176. Just by pressure alone?

A. Yes.

Q. 177. And in that respect it would be more or less like the wetting of a water soluble cement, would it not?

A. Yes.

Q. 178. When was it that you tried out that possible use of benzol, do you remember?

A. I think it was in 1925.

Mr. Darby: If your Honor please, we have the original here of the assignment that counsel for the defendant requested. I telephoned my office, and I find I was mistaken and that it was not recorded. That is a matter of record, and my recollection was not correct.

Mr. Warland: I would like to have it appear on the record that that assignment was never recorded.

The Court: He has already announced it.
Mr. Darby: I have said it.

Cross-examination.

By Mr. Warland:

X Q. 179. I show you Plaintiff's Exhibit 56 which is dated July 13, 1925. Do I understand you that that is the date [fol. 611] of your invention of the matter shown in patent 1,899,782?

A. This is my first description of the patent, July 13, 1925; that is not the date of the application.

X Q. 180. Yes, I am just asking you was that the date of the invention.

A. Yes.

X Q. 181. Application for that patent became involved in interference with an application of Lange, didn't it?

A. Yes.

X Q. 182. Or with a patent to Lange?

A. Yes.

X Q. 183. The application for this patent 1,899,782 became involved in interference with a patent to Lange 1,758,610, did it not?

A. I believe it did.

X Q. 184. This patent to Lange is the one which became involved in interference with the application for the patent in suit 1,899,782, is that right? Look at the claims in that patent there.

A. I think so.

X Q. 185. You made a preliminary statement in that interference, did you not?

A. Yes.

X Q. 186. And you stated in that preliminary statement that the invention was reduced to practice by manufacturing and using material of the character defined by the count on or about the first day of June, 1915, at Baltimore, Maryland, and that material of the character defined has been made and used in large quantities since June 1, 1915. That is true, isn't it?

A. Yes.

X Q. 187. And you testified as a witness in this interference as you recall it?

A. Yes.

X Q. 188. And you stated in that interference that July 13, 1925, was the date of your invention, didn't you?

A. Of my non-metallic spot crowns.

[fol. 612] X Q. 189. Called for by the interference?

A. Yes, this varnish paper spot crown.

X Q. 190. And this identical paper which is marked Plaintiff's Exhibit 56 in this case was Warth Exhibit 29 in Interference 60,878?

A. I am not able to follow you completely on these numbers; I simply don't remember them. I can tell you about many of these things and the circumstances surrounding them from the standpoint of a chemical engineer, not from the standpoint of an attorney.

X Q. 191. Do you remember testifying in the interference as follows: "Do you understand the claim involved in this interference and I refer to the claim of the Lange patent involved in this interference?" and your answer, "Yes;" do you remember testifying to that?

A. Yes.

X Q. 192. And this, "Do you claim to be the inventor of the subject matter of that claim?" and your answer "I do." Did you so testify?

A. Yes.

X Q. 193. That was the same invention which you say was reduced to practice and sold in large quantities in 1915?

A. Well, so far as the strip material is concerned, strip material was made way back in 1915 but there was no non-metallic spot crown or glazed paper spot crown made until a far later date, 1925 I said I made the first non-metallic spot crown.

X Q. 194. Where it reads, "The new article of manufacture, a paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof." Do you claim to be the inventor of that in 1915?

[fol. 613] A. I do not claim to be the inventor of it, no, except in so far as the coating of a varnished glazed paper with a solution of gutta percha in carbon tetrachloride is concerned, I was the first to do that. That was way back in 1915. I might say that we bought the glazed paper then.

X Q. 195. Do you remember testifying in that interference as follows, in reference to this article, "A short time

in 1915 we made the coated oil paper with gutta percha solution and we had this in operation for about a week, but this material was not used for center spot crown material, but was used for wide mouth bottles."

A. Yes, I mentioned before that this was not, we made these other crowns in different sizes. We did have a small size Axa crown but that was a separate division from our beverage business.

X Q. 196. Now, plaintiff's answer to the defendant's bill of particulars gives a date of conception and reduction to practice as 1921, of this invention, is that right?

A. 1921 I produced the first varnish coated paper having a chinawood oil varnish and a paper which was tasteless and odorless.

X Q. 197. Now, there is nothing here about the relation of your invention, about a chinawood oil, it says, "Having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof."

A. It was an alcohol resistant.

X Q. 198. Just read that please and tell me whether you invented that in 1915 or whether you did not.

A. Your question is involved as to what really constitutes invention and I am not in a position to decide.

[fol. 614] X Q. 199. But you did say in your testimony in this interference that count covered your invention, didn't you?

A. It seemed to me that it matched up very much with some claims that Lange had for coated varnished paper that was alcohol resistant and acid resistant. You see, Lange had a rather broad claim——

X Q. 200. You just read that claim, no matter whether it is broad or not; we won't discuss that. Didn't you testify in that interference, referring to Exhibit 29, that is the paper I have just shown you of 1925, "I note that you have appended to the description three brief statements which are in the form of claims. Please state whether you regard the gutta percha as your invention or the paper or both, that is, the combination. A. I regard the combination of paper and the gutta percha as my invention." That is correct, isn't it?

A. Yes.

X Q. 201. That is what you invented in 1915, is that right?

A. I said before that it was, as far as I was concerned it was something that was new, fairly new in the art.

X Q. 202. Fairly new in the art in 1915, when you made them?

A. Yes.

X Q. 203. You were asked this question: "In your opinion does the claim involved in this interference describe the product that was made in the Crown Cork & Seal Company's plant in the summer of 1927? A. It describes the product that was made in the Crown Cork & Seal Company plant since May 5, 1927." And that is the same thing that you invented in 1915, wasn't it?

A. Not the same thing, because the product that was made in 1915 was rather a thin paper, as I recall it, not [fol. 615] suited particularly for spot crowns, for sealing of acidulous carbonated beverages.

X Q. 204. Do you remember testifying in this interference, "What, in your opinion, is an article of manufacture? A. In my opinion an article of manufacture—an article of manufacture is an article which has not appeared on the market before.

"Q. What does the article consist of that is defined by this claim? A. It consists of a varnish coated glazed paper coated on the reverse side with gutta percha."

Now, that is what you invented in 1915, isn't it?

A. 1915, why, the products in some way vary, they were vastly different from the later product, but in the general broader way it was the same. It was a coating that was obtained, coating a strip of material with a gutta percha solution, which on drying gave a very thin film, and that was substantially a film of gutta percha that we found later was required for spot crowns that was used for sealing these high pressure beverages.

X Q. 205. What did you invent in 1921, the date given in the bill of particulars?

A. Well, I haven't those bill of particulars there, I don't know, I haven't seen any of that testimony in years.

X Q. 206. Now, you state in answer to the bill of particulars, or rather, it is stated in the answer to the bill of particulars on patent 1,899,782, the date of conception is early in 1921 and reduction early in 1921. Is that correct or is it not?

A. 1921?

X Q. 207. Yes.

[fol. 616] A. If it says so there it must be true; I must have had records to make that statement.

X Q. 208. Well, how about your record that has just been put in evidence here—they showed you a specimen of the material that was made in 1921, a piece of paper that was coated with varnish containing chinawood oil and a plasticizer.

A. So far as the material is concerned, yes.

X Q. 209. How about Plaintiff's Exhibit 56, which refers to the combined varnish paper and gutta percha which you say you invented in 1925?

A. As I recall, it was a black alkali paper coated with an asphaltic varnish.

X Q. 210. You don't say anything here about a black asphaltic varnish paper.

A. And we also used this yellow oil paper.

X Q. 211. What I want to know is, is the statement that you made in the interference that you conceived this thing in 1915, and reduced it to practice, is that correct or is it not correct?

A. In 1915, we made a paper which was coated——

X Q. 212. Please answer my question. Is it correct or is it not correct?

A. What constitutes a reduction to practice I am not able to answer, that is a matter for attorneys to decide.

X Q. 213. You made an affidavit saying that it was true?

A. I thought it was true, I was advised by counsel, and I assumed they were correct before I signed the document—legally correct.

X Q. 214. Counsel advised you what reduction to practice was at the time?

A. No, they did not—from a legal standpoint.

X Q. 215. Did you sign a statement of something that you did not know whether it was true or not?

[fol. 617] A. I might not understand the legal end of a thing and still sign a document if I thought it was advisable to do so, and I had reason to believe it was true.

X Q. 216. I show you a certified copy of the File Wrapper of application for patent to Warth No. 1,899,783, and I ask you if you recall making the affidavit dated December 31, 1932, part of the File Wrapper of that patent?

A. Well, it has my signature.

X Q. 217. You did make that affidavit?

A. I must have signed it, I must have made it.

X Q. 218. I notice you said in one portion of that affidavit, "The final development of this spot which proved to

be satisfactory in use presented a number of problems from the standpoint of economical production on a commercial scale. As will be understood, manufacturing plants had already installed machines for the manufacture of center foil spots and it was necessary, therefore, that I design my cap so that it might be manufactured by existing machinery." Now, who were the other manufacturing plants referred to in that affidavit? The affidavit is dated 1932.

A. 1932, that were manufacturing spot crowns?

X Q. 219. That is what you say in the affidavit.

A. Well, I can only tell you from my best knowledge and belief: I think the Western Stopper Company made some spot crowns; W. H. Hutchison of Chicago; and in 1932, the defendant made them, and I am not positive, but I think they were made by Truslow & Fulle and by the Standard Crown Company.

X Q. 220. Do you think of any others?

A. The Armstrong Cork Company, Armstrong Cork Company.

[fol. 618] X Q. 221. Is that all you can think of now?

A. That is all I can think of just now, but there might have been one or two others.

X Q. 222. You stated on page 54 of that affidavit: "The Crown Cork & Seal Company had used for many years a mixture of Burgundy pitch and other adhesive materials which constituted an adhesive resistant to liquid, but an adhesive merely moisture-resistant was not suitable for a center spot cap. In addition to this adhesive, a large number of other adhesives have been used in the crown cap art, but I found none suitable excepting the one having characteristics of (a) water insolubility, (b) heat-fusibility, and (c) acid resistance. The only adhesive available at the time having those characteristics available I found to be gutta percha, or a mixture of gutta percha and other materials, making the adhesive essentially gutta percha. I discovered that this particular adhesive had another characteristic which made it of extreme value, namely, its inherent elasticity which afforded an elastic cushion or backing for the paper."

Just what did you mean by that statement, that you discovered the use of gutta percha as an adhesive?

A. Well, I discovered the use of gutta percha as an adhesive in all senses of the word? No.

X Q. 223. You mean to say you discovered it as a suitable adhesive for center spot crowns?

A. No.

X Q. 224. That had been done long before your time, had it not?

A. No, I do not think so. When I was with the Crown Cork & Seal Company rather early I remember making up, [fol. 619] not spot crowns necessarily, but facing materials with gutta percha on cork, very early, but I wouldn't say positively that I originated that; I wouldn't say that.

X Q. 225. You were shown that slide spot machine that Mr. Goebel put in yesterday.

A. Yes, sir.

X Q. 226. And that worked on gutta percha and metal foil—for center spots?

A. Yes.

X Q. 227. That you used in the plant of the Crown Cork & Seal Company as far back as 1914 or 1915?

A. No, I do not believe that was as far back as that, I wouldn't have any knowledge anyway of the date as early as 1914, because I wasn't with the Crown Cork & Seal Company then. But I know that they had no slide machine when I first came there.

I wanted to say to your Honor with respect to these dates that go way back, they are approximate. For instance, they may be a year out of the way; when it comes to 1916, it may be 1915 or 1917. I am not trying to fix exact dates going back almost twenty years.

X Q. 228. Let us put the question this way: When you first went to work for the Crown Cork & Seal Company in 1916, Crown Cork & Seal Company of Baltimore, Maryland, that company was making and selling crowns having a metallic foil center spot secured in the crown disc by gutta percha?

A. No, I do not believe they were selling any.

X Q. 229. Not selling any?

A. No.

X Q. 230. When did they first begin to sell them?

A. I think they first began to sell them in 1917 or 1918. I believe the first crowns I saw there were made up for a [fol. 620] concern called the Colfax Bottling Company, Colfax, Iowa. I do remember these crowns, and this tin-foil was so badly wrinkled on them, I do not know how they were

attached to the cork, but they were badly wrinkled. Evidently they had been turned out by one of the managers of production.

X Q. 231. Didn't you have charge of that?

A. I didn't take charge of production.

X Q. 233. You knew about the production?

A. Did I know about it? Not everything, because when I came with the Crown Cork & Seal Company in 1916, a Mr. J. G. Daly was the chemical engineer. He left, however, within about a year, when I assumed charge. So that there were many things that went on down there when I was only an assistant, that is, for the first year, that I did not know about. So I did not know everything the first year, I was assigned to certain problems.

X Q. 234. You did have a general knowledge of the kind of goods they were selling and you were to work on?

A. I was learning about it that year.

X Q. 235. And you learned very shortly after you went there that they were selling a metal-foil spot with gutta percha adhesive?

A. No, they were selling a crown which had a metal cork disc with a foil over the whole facing, and tucked in around the edge. And they shipped some of these crowns, and I remember they shipped some to Saratoga Springs, that was what we called the London crown. And in 1918, or thereabouts, there were considerable complaints about these crowns because it would not seal the carbonated waters. And they were bending every effort to get out the spot crowns.

[fol. 621] X Q. 236. I show you Defendant's Exhibit GGGG which covers a number of invoices from the Crown Cork & Seal Company to the Kalak Water Company and one of those is dated June 1st, 1917, and calls for tin-foil center light. Another one on June 18, 1917, calling for 200 gross, tin-foil center light; another one dated August 9, 1917. How were those spots put on, were they not put on by gutta percha?

A. Yes.

X Q. 237. And you knew that these shipments — to the Kalak Water Company at the time?

A. Just let me see those again, please? What amuses me is the very large number of crowns that went out at that early date. I did not know the quantity of crowns shipped

to the Kalak people but I did know we were shipping crowns to the Kalak Water Company.

X Q. 238. On the dates in 1917, mentioned in the invoices.

A. Evidently that must be true if they were mentioned in the invoices.

X Q. 239. I call your attention to your patent 1,788,260, the application filed January 7, 1927. It reads, "According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper." How far back was gutta percha used when you made that affidavit?

A. Gutta percha tissue was used evidently prior to 1917.

X Q. 240. For securing the center foil spots?

A. For securing tin-foil center spots, yes.

X Q. 241. Now, as I understand your testimony as to this 4620 you first thought of that in 1926?

A. In 1926, yes, about that time.

X Q. 242. Did you think of nitrocellulose in resin?

[fol. 622] A. I thought of a resin—that is a solution of a resin and nitrocellulose with a plasticizer or solvent material.

X Q. 244. Is it described in your patent 1,956,481?

A. Well, a material of that nature is referred to in the patent. However, in my experiments, my early experimentation, I did not have these glyptals or synthetic resins to work with, my work was done very largely with natural resin, and the resins that were available in those years.

X Q. 245. You are familiar of course with the composition of the adhesive in your patent?

A. Yes, the perfect composition uses a synthetic resin as one of the components—4620.

X Q. 246. The material described in that patent, is that the same as 4620?

A. I would not say it is the same, but the formula that is given there as an illustrated formula is one that produces a resultant effect of the thermoplastic film that I have described on the stand here before.

X Q. 247. Would you say whether the composition described in patent 1,956,481 is or is not the same composition as in 4620?

A. In so far as it contains a synthetic resin, nitrocellulose, a plasticizer and a solvent it is the same.

X Q. 248. What do you use in your commercial production now?

A. In our commercial production we are using 4620.

X Q. 249. And you didn't make any caps to demonstrate the value of this nitrocellulose and resin until 1932, did you?

A. Did I make any spot crowns? I made them back years before——

X Q. 250. Listen to the question, please read it to him.

(Question repeated by the reporter.)

[fol. 623] A. Not in any considerable quantity.

X Q. 251. You really didn't begin your experiment with it until 1932, did you?

A. I stated that I was experimenting—you mean with a material such as is described, a synthetic resin, nitrocellulose, a plasticizer and solvent, a material of that description?

X Q. 252. Yes.

A. A material of that description which has synthetic resin in approximately the proportions as they are given there, I did not experiment with until January, 1932.

X Q. 253. When did you first find out the superiority of 4620 as an adhesive over gutta percha?

A. I found a considerable superiority of the 4620 over gutta percha in January, 1932, almost, within a very short time, the same month, in fact almost the same week as I got the sample can of material.

X Q. 254. But you didn't discover that in 1926, did you?

A. No, I couldn't discover it in 1926. In 1926 I stated that I wasn't able to get any material which was superior to gutta percha. This 4620 is superior to gutta percha; it is a thermoplastic, that is my belief.

X Q. 255. Now, you made an affidavit in this application for patent 1,956,481, on March 22, 1934, did you not?

A. That is my signature.

X Q. 256. You state in that affidavit, "This continued improvement in the adhesion has been observed throughout periods of a year, and is a valid characteristic of this invention." When did that year begin?

A. That year, the testing and finding out the superiority of 4620 over gutta percha began in January, 1932, and lasted, our experiments lasted throughout the year. And if [fol. 624] you care to I could tell you what that superiority is.

X Q. 257. You saw the sample of the material coated with 4620 which was given by the defendant to Mr. Fusting and Mr. Darby in their office in 1933, did you not?

A. I believe I did, I think I saw some of those crowns.

X Q. 258. I show you the patent in suit 1,956,481, and I call your attention to the matter on page 2, beginning at line 11, "Among" and so forth, down to line 60. You said there the great superiority of nitrocellulose and resin over gutta percha and that matter, according to the file wrapper was inserted on March 23, 1934, some six or eight months after you had seen that sample that the defendant gave you. Is that the first time you realized the advantages of a nitrocellulose adhesive over gutta percha?

A. No, I realized those advantages, as I said before, in January of 1932.

X Q. 259. Why didn't you insert that in your application when it was filed in 1933?

A. I did not write this application, I gave the proper information to my attorneys but I did not write the application.

X Q. 260. You read it before you signed it?

A. I read it.

X Q. 261. And it set forth your invention as you thought it was?

A. I read it and signed it.

X Q. 262. Now, if you discovered, as you say you did, the superior qualities of nitrocellulose and resin over gutta percha in January of 1932, why did you——

A. Pardon me—from a manufacturing standpoint and from certain physical standpoints but I had not yet dis- [fol. 625] covered whether that particular spot crown was made that way in the manner that has been described before was suitable for sealing these various beverages. I went ahead with my bottling tests.

X Q. 263. Did you find that out in January of 1932?

A. No, I had not completed my tests on bottling. Those were not completed until just about the first part of 1933. It took to the end of the year before I satisfied myself that a spot crown that was made up with this material would be satisfactory for the brewers and for the ginger ale bottlers and for others.

X Q. 264. And that was about a year after January of 1932?

A. Yes.

X Q. 265. Now, I showed you an affidavit a few minutes ago in the file of application for patent No. 1,899,783 and I show you a certified copy of file of 360,895.

A. Yes.

X Q. 266. In April, 1932, which is the date of the affidavit which I just showed you, you stated that gutta percha is the most desirable adhesive, did you not? Let me show you the statement.

A. Desirable compared with what?

X Q. 267. Didn't you find it the most desirable adhesive there was at that date?

A. Well, I must say, all I can say is in a good many respects we had not proved the superiority of the 4620 or nitrocellulose resin until well throughout the year 1932. I wouldn't say until the middle of Summer that it was better until I completed my tests. Up to that time gutta percha as a whole, and particularly the better qualities that are on the market today, was satisfactory for many purposes.

X Q. 268. And you took out quite a number of patents [fol. 626] or made application for a number of patents after January, 1932, in which the adhesive was either gutta percha or Dammar gum or resin or something like that?

A. Yes, for specific reasons.

X Q. 269. I show you an affidavit on file in application 360,895, dated December 3, 1930, from which resulted patent 1,899,783, and I ask you if you made that affidavit?

A. That is my signature, I must have made it.

X Q. 270. You state on page 2 of that affidavit, "The use of varnish in the cap manufacturing industry, and particularly in the manufacture of crown caps extends back for a period of not less than 15 years."

A. How many years?

X Q. 271. 15. "Furthermore varnish has been used to protect the interior surface of caps for over 12 years as a result the relative proportions of resin and oil employed in this art have become standardized." That is correct, is it not?

A. Yes.

X Q. 272. Look at your patent in suit No. 1,899,782.

A. 1,899,782?

X Q. 273. Yes, please look at page 3 of that patent, down at line 124 where it says, "The method described has been found to be applicable to the coating of paper strips with gutta percha and it is also applicable to coat metal foil but in coating foil it is desirable"—now, when you filed that application it read, "It being extremely doubtful that it could be advantageously used for metal foil." When did

you find out that it could be used advantageously for metal foil?

A. Not necessarily, some of the aluminum foil that is on the market is very often greasy and in that case it may be desirable——

[fol. 627] X Q. 274. But you did not know whether it could be used for metal foil or not when you filed the application?

A. Well, you see this does not——

X Q. 275. Please answer the question, you did not know whether it could be used advantageously for metal foil when you filed the application for this strip material patent?

A. Oh, yes.

X Q. 276. Why did you say it was doubtful whether it could be used on metal foil?

A. I did not say that it was doubtful, I said that, in coating foil it was desirable to previously prepare it by an application of a coating on the surface of the foil to receive the gutta percha and permit it to adhere thereto with sufficient strength to permit a continuing application of gutta percha to a strip as required by the method of my invention. And that would still hold true with certain grades of gutta percha. It depends entirely on the grade of gutta percha that was used.

X Q. 277. You say in your application for this patent that was filed, "The method described has been found to be applicable to coating the paper strips with gutta percha, it being extremely doubtful if it could be advantageously used to coat metal foil."

A. I do not read the word "doubtful" here.

X Q. 279. It is written in there in typewriting, it was crossed out when the amendment was put in in January, 1933, I think, saying it could be used for both paper and metal foil.

A. Well, the "doubtful" is crossed out.

X Q. 280. Yes, it was crossed out when the amendment was put in in 1933. I am asking you why you said that when you filed the original application in 1929.

[fol. 628] A. There was some question whether you could coat an aluminum foil satisfactorily with any gutta percha that contained a high gum content, where the gutta gum was higher than the gum resin.

X Q. 281. You didn't know that until January, 1933, when you put the amendment in, did you?

A. I can't attach my memory to that particular date.

X Q. 282. Now, I will show you your patent in suit 1,899,783, and call your attention to Fig. 3, showing a strip of foil and a strip of gutta percha being fed in separately. That method has been discontinued, has it not?

A. Yes.

X Q. 283. That was discontinued when, about 1925 or 1927?

A. About 1927.

X Q. 284. Why was an application filed in 1929, showing that method?

A. Well, that is one of the ways of doing it. I do not believe, it is not stated in the claim that the two individual strips of material are fed in that way, and I did not make these drawings. They were made by the patent attorney. I doubt whether I have ever seen them, whether I saw them at the time that I signed that.

X Q. 285. You mean you swore to a patent application without either looking at the drawings or the application?

A. I may never have seen those drawings.

X Q. 286. You wouldn't say you didn't see them?

A. I wouldn't say I did see them, because it is possible to do it that way, use it that way.

X Q. 287. You testified in this interference 60,878, that this method was abandoned before the application was filed, didn't you?

[fol. 629] A. What method? The method of using two strips of material from a production standpoint was abandoned by our company prior to 1929.

X Q. 288. Prior to 1929?

A. Yes, prior to this application. As far as our company is concerned, as far as our operations down at the Crown Cork & Seal Company were concerned.

X Q. 290. Now, let us go back to this 4620 adhesive for a moment. You have put in evidence letters from the Waldron Company; in June, 1933, I believe you went down and you saw a test there in June, 1933, and again in July, 1933, and the invention wasn't complete to your satisfaction until those tests had been made, was it?

A. No, I said no such thing. I didn't say I went down there to see the operation; I said I went down to conduct the operation.

X Q. 291. All right, you went down to conduct the operation?

A. Naturally I saw it if I conducted it.

X Q. 292. You were not satisfied with the commercial availability of 4620 as an adhesive until after these tests were made?

A. That is not true. I was not satisfied, of course, as to what might be accomplished in production, and then there were other features involving rewinding and slitting which I had to leave to Mr. Goebel entirely, because I know little about that type of equipment, but so far as the baking operation and coating and drying, everything went splendidly down at Baltimore.

X Q. 293. And you thought it necessary to have it tested outside before you put it on the market?

A. Not necessary.

X Q. 294. Why did you go to all these extensive tests out at Waldron, New Jersey?

[fol. 630] A. With the idea of installing equipment to produce these new spot crowns in large quantities.

X Q. 295. And you did not produce them in large quantities commercially until June of 1934?

A. It was sometime in 1934, in June, before we produced them in large quantities.

X Q. 296. You spoke of using a particular kind of varnish paper for these center spot caps; where did you get that?

A. Our varnish paper for glazed paper spot crowns was gotten in the early days exclusively from the Standard Insulation Company.

X Q. 298. And is that the same kind of paper they were selling to many other manufacturers on the market?

A. Yes.

X Q. 299. I show you a patent to Lange, No. 1,657,802, with the application filed December 16, 1924, where it says, "Papers known to the trade as kraft paper, express paper or rope paper, and with a thickness of from four to six thousandths of an inch before being coated are suitable for this work. The varnish may be a pure quick-drying oil varnish and may be applied to a thickness of from one thousandth to two thousandths of an inch." That is the same thickness that you applied to the paper?

A. Substantially so.

X Q. 300. And it is substantially the same kind of paper?

A. Yes.

[fol. 631] Brooklyn, N. Y., November 15, 1935.

Met pursuant to recess at 10:00 a. m.; present as before.

GEORGE GOEBEL, recalled, testified further as follows:

Direct examination.

By Mr. Darby:

Q. 468. There has been some testimony with reference to the purchase of the Crown Cap Manufacturing Company by the plaintiff. Do you recall how many machines, so-called Johnson machines adapted to apply center spots were obtained from the Crown Cap Manufacturing Company by the plaintiff?

A. Two.

Q. 469. One of those machines was that combination machine for putting the cork disc in as well about which you testified as having seen in a crate recently?

A. Yes.

Q. 470. What was this other machine, was it a combination machine or just a plain center spotting machine?

A. It is straight spotting machine.

Q. 471. Where is that straight spotting machine now?

A. It is put up in a building away from the spot department, we call it the screw cap department, where we rubberline the caps.

Q. 472. To what extent has that machine been used since it was obtained from the Crown Cap Manufacturing Company which was acquired by the plaintiff in 1933?

A. That machine was put up last Fall; we received an order for a small quantity of 31 millimeter crowns to be paper spotted.

[fol. 632] Q. 473. That is a crown much larger than these crowns we have been talking about here in this case?

A. Yes, 5 millimeters larger; and we altered the machine to the size of that crown, and we spotted a few, I do not think it was more than a hundred, it might have been a few hundred gross.

Q. 474. To what extent has that machine been used since last Fall?

A. It was used last Spring too.

Q. 475. So last Fall and last Spring it was used?

A. Yes, and then put out of the way.

Q. 476. When you testified yesterday in answer to RDQ444, in answer to the question were any Johnson machines ever used in the plant at Baltimore, did you have that particular machine in mind when you answered the question?

A. No, I did not.

Q. 477. You had forgotten that machine?

A. That slipped my mind.

(Witness excused.)

HENRY D. REED, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Mr. Reed?

A. East Orange, New Jersey.

Q. 2. What business are you in?

A. Manufacturing business.

[fol. 633] Q. 3. And connected with what company?

A. The Bishop Gutta Percha Company, the Bishop Gutta Percha Company, the Bishop Wire Cable Company, and the No-Slip Rubber Company.

Q. 4. As to the Bishop Gutta Percha Company what are you there?

A. I am president.

Q. 5. Are you actively in touch with the manufacturing operations there?

A. I oversee all manufacturing operations in the plant.

Q. 6. And what about the gutta percha compositions, are you familiar with them?

A. Perfectly.

Q. 7. Why?

A. I buy the gums that the product is made of and I make up the formulas from which the different articles are made.

Q. 8. How long have you been doing that?

A. 20 years.

Q. 9. I show you some invoices of the Bishop Gutta Percha Company of 1925 which are Defendant's Exhibits OO, QQ, RR and SS, and I ask you to state if you know what is the surgical tissue that is specified in those invoices?

A. I am familiar with that kind of tissue, we manufacture it. These are our invoices.

Q. 10. You are familiar with its character as you manufactured it in 1925, are you?

A. Yes.

Q. 11. How long have you been making that surgical tissue?

A. Under this formula for 19 years—no, from 1919 to the present time—that is 16 years.

Q. 12. That is your present formula is the formula that you were using in 1925?

A. It is.

Q. 13. Did you use any other formula in 1925 for surgical tissue?

A. No, sir.

Q. 14. Now, I show you a part of a roll of foil with a backing on it and I ask you to state if you know what that is. [fol. 634] First, let me ask you this; at our request you coated some tin-foil for us, did you not, recently?

A. Yes, sir.

Q. 15. Within the last few days, about a week ago?

A. Yes.

Q. 16. And you coated that with a surgical tissue as you make it today?

A. Yes.

Q. 17. Now, I ask you what that roll is that you have in your hand.

A. That is tin-foil coated with surgical tissue, interlined with wax paper.

Q. 18. Who made it?

A. We made the gutta percha tissue.

Q. 19. Did you apply it to the tin?

A. We did.

Q. 20. How did you apply it to the tin?

A. The tin is taken in a six-inch width and the gutta percha tissue, the surgical tissue was applied by means of pressure by running through two rollers and then it was slit into this one-inch width, and wound on these cores.

Q. 21. Now, is the surgical tissue on that roll the surgical tissue which you make today?

A. Yes, sir.

Q. 22. Is it exactly the same as the surgical tissue that you made in 1925?

A. Exactly the same quality.

Mr. Scull: I ask that the roll be marked for identification as Plaintiff's Exhibit 77.

(Marked Plaintiff's Exhibit 77 for identification.)

Q. 23. I also show you some invoices of the Bishop Gutta Percha Company for 1928, calling for spooled Indian Brand tissue, and also I. B. tissue. Is that the same as surgical tissue?

A. No, sir.

[fol. 635] Q. 24. What is the difference?

A. They are made for different purposes. The surgical tissue is made to be strong and have a long life, whereas the Indian Brand tissue is made up for its adhesive properties.

Q. 25. Does the surgical tissue become tacky when heated?

A. It becomes tacky, but not as tacky as the Indian Brand tissue, and doesn't have the property of adhering to metal the same way the Indian Brand tissue does.

Q. 26. Do you make and sell coated foil for use by manufacturers of spot crowns?

A. Yes, sir.

Q. 27. What kind of gutta percha do you use on that?

A. We use the Indian Brand type of tissue.

Q. 28. How long have you been making and selling that combination?

A. The Indian Brand type of tissue?

Q. 29. Yes.

A. Since 1906.

Q. 30. How long have you been selling it for use for making spot crowns, to your knowledge?

A. Since about 1917.

Q. 31. Do you know to whom you sold it at that time?

A. Crown Cork & Seal Company.

Cross-examination.

By Mr. Warland:

X Q. 32. What is the difference between surgical tissue or surgical gutta percha and other gutta percha?

A. These tissues are made up by mixing several different qualities of the natural gutta percha. Some gutta perchas contain considerably more resins than others. The gutta percha consists of gutta gum and gutta resin. The greater the percentage of the gutta gums, the more heat [fol. 636] is required to soften it and make it tacky, but it

has a much longer life. When we want to obtain adhesive properties we use a much larger percentage of lower grade gums than we do of the high grade gums. When we want to obtain life and strength such as in this surgical tissue we use the high grade gums which contain a smaller percentage of resins. Does that answer your question?

X Q. 33. Yes, the surgical tissue is, as I understand you, a better quality, higher grade, and it is cleaner, it is cleaner, has less impurities than the commercial grade, is that right?

A. Well, we have to clean them both. The gums that go into the surgical tissue are not originally as dirty as the other gums, and they are easier to clean, although we endeavor to get the others just as clean as we can, but it is next to impossible.

X Q. 34. Well, of course this has the name surgical gutta percha, and I suppose that gets its name from the fact that it is used more largely by physicians and surgeons than the other kind, is that right?

A. Yes, we make it for that purpose.

X Q. 35. In other words the physician wants to get the best and purest thing he can get?

A. It is not only that, but this is put in stock by drug-stores and they may carry it two or three years in stock before they sell it and we require a high grade gum in order to get long life.

X Q. 36. Surgical gutta percha is more expensive than the other?

A. Yes.

X Q. 37. But it sticks just like the other?

A. Not to metal.

X Q. 38. Does it stick to anything else?

A. Not as much as the other gums.

[fol. 637] X Q. 39. But it does stick?

A. It does stick, it sticks to itself, and that is what we have it for.

X Q. 40. One of the inherent properties of gutta percha is stickiness, isn't it?

A. Under heat.

X Q. 41. Well, if you are using a beverage or a liquid which you want to have as pure as possible, and you were using gutta percha adhesive, you would use the best quality of gutta percha?

A. No, sir, the other is just as pure, the fact that the lower grades of gutta percha contain a large percentage

of resin which makes them sticky does not indicate they are not just as pure and just as antiseptic.

X Q. 42. Then one sticks just as well as the other, doesn't it?

A. No, sir.

X Q. 43. But nevertheless one does stick, the surgical does stick?

A. The high grade sticks to a much lesser degree than the low grade.

X Q. 44. But they do stick to a considerable degree?

A. I would not say to a considerable degree, we have difficulty in getting the high grade gutta perchas to stick.

X Q. 45. What is this article that I hand you now (handing witness cap)?

A. It is a crown with a portion of a spot on it.

X Q. 46. What is that portion of spot made of?

A. It appears to me to be tin.

X Q. 47. Isn't it a piece of this strip that you just offered for identification?

A. Well, it is a similar one; I cannot say that it came off this spool.

X Q. 48. That cap I handed you first, that piece of foil there, sticks doesn't it, to the crown?

A. There is an adhesion there, yes, sir.

X Q. 49. And you have got to use quite some pressure or effort with your fingers to pull that off?

[fol. 638] A. I would not say quite some—there is a slight adhesion there of course.

X Q. 50. Now, will you take a piece of this roll which you just put in for identification. Now, will you be good enough to take a match and heat that tin-foil and then put the gutta percha on there?

A. Yes, sir (demonstrating).

X Q. 51. Does that adhere or does it not, to the cork?

A. It does adhere.

X Q. 52. Will you hand that to the Court, please?

A. Yes.

X Q. 53. Now, did you tell Mr. Scull that the Bishop Gutta Percha Company first sold gutta percha to the Crown Cork & Seal Company——

A. I think it was 1917.

X Q. 54. Is that when you told him?

A. I think it was 1917.

X Q. 55. Are you sure of that date?

A. Very close.

X Q. 56. Did you testify on behalf of the party Warth in an interference proceeding in the Patent Office of Warth against Lange?

A. Yes, sir.

X Q. 57. Do you remember testifying in that case?

A. Yes.

X Q. 58. And did you testify as follows: "Q. How long have you been supplying the Crown Cork & Seal Company with gutta percha tissue of a character which may be united with paper or other materials adhesively by this heat-producing pressure?" and your answer was "Since about 1914. That would be 15, 16, 17 years." Did you so testify?

A. I remember that, I probably did.

[fol. 639] MIRIAM STOVER, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Miss Stover?

A. In Baltimore.

Q. 2. And you are secretary, are you not, to Dr. Warth?

A. Yes.

Q. 3. Have you had any education as a chemist?

A. Yes, I had a six-year science course at Baltimore City College.

Q. 4. And in that course, did you have some training in chemistry?

A. Yes, three years in chemistry and three years in other sciences.

Q. 5. As secretary to Dr. Warth, do you have anything to do with the laboratory?

A. Yes.

Q. 6. Just what do you do?

A. I get all the samples of incoming materials, and they are listed and sent to different members of the laboratory, all samples of any materials, or any incoming samples of raw materials go through my hands. I also conduct some

investigations in the laboratory which Dr. Warth gives me from time to time.

Q. 7. Were you occupying this position in 1926?

A. Yes.

Q. 8. I show you Plaintiff's Exhibit 55 and ask you whether you have ever seen the original of which that is a copy?

A. Yes, I did. The writing, "Adhesive for sticking aluminum spots," at the top was mine. I typed the letter.

Q. 9. That is, the letter "S" stands for "Stover"?

A. Yes.

[fol. 640] Q. 10. Did you write it at about the date that appears thereon?

A. Yes.

Q. 11. When did you make that pencil notation on it?

A. Probably two or three days later, when I filed it away.

Q. 12. Do you remember any circumstances connected with the nitrocellulose resin adhesive that is referred to in that Plaintiff's Exhibit 55?

A. Yes, I do.

Q. 13. What is it?

A. I remember some materials that Dr. Warth had been working with at that time, prior to that time.

Q. 14. Do you know what those materials were?

A. I do not remember distinctly, but I know there were some nitrocellulose materials.

Q. 15. I also show you a series of letters signed, "M. Stover," and dated beginning January 20th and extending to October 20th, 1932, which are now Plaintiff's Exhibit 67, and ask you if you know what they are?

A. Yes; they are notes that I wrote to Dr. Warth from time to time on experiments that I conducted in the laboratory.

Q. 16. These were written for purposes of record, were they?

A. Yes, they were written for purposes of record, just a memorandum record.

Q. 17. And this signature, "Mr. Stover," is yours that appears thereon?

A. Yes.

Q. 18. They were written on the dates which appear thereon?

A. Yes.

Q. 19. Now, they refer to a DuPont 4620 thermoplastic cement. When did you first see a sample of that particular cement?

A. A few days prior to that letter.

Q. 20. The first one, January 20, 1932?

A. Yes, probably a week or ten days before that time, Dr. Warth had this small sample that was either given [fol. 641] or sent to him, I do not remember whether it was left there personally or whether it was sent in the mail.

Q. 21. Did he turn that sample over to you?

A. Yes.

Q. 22. What directions did he give to you at that time?

A. He turned it over to me and he said, "Will you please see if this will work as an adhesive for aluminum spots?" He said "That is something I have been trying to find, as you know, for a long time, a nitrocellulose material that we could use for that, and we want to see whether this is better than anything we have had before."

Q. 23. Then, what did you do?

A. I coated it on aluminum foil in a laboratory way with a small brush, dried it in the air, stamped out some spots and applied them by means of a heated plunger to some crowns.

Q. 24. Then after that?

A. They seemed to work very well, so I coated a longer strip, sent it to the assembly department, and they made up probably half a gross of crowns for me. They came back in very good shape.

Q. 25. Then, according to this letter dated January 20, it says, "A few bottles of assorted beverages were put up and are now in the dark room." What does that mean?

A. We put up beer and other beverages, particularly beer, with aluminum spots and we take the commercial product and replace the crowns and the dark room is our storage room for that product.

Q. 26. How do you replace the crowns on a charged bottle?

A. We make a freezing mixture of ice and salts and we put the bottles upside down in this mixture and have it [fol. 642] very thoroughly frozen at the top and then we remove the crown and replace the crown with a small bottling machine.

Q. 27. You do not lose any of the gas that way?

A. No, we do not lose any of the gas.

Q. 28. Now, these other letters of Exhibit 67 refer to comparisons with gutta percha and the running of other tests. For instance, one case here dated March 19th, "Two bottles of Canada Ginger Ale put up with Irvington shellac coated paper, thermoplastic cement"—by this time you had coated paper and you used it for caps?

A. Yes.

Q. 29. And they were experimental caps that you had in the laboratory?

A. Yes.

Q. 30. I note here that the spots were in good condition but the Canada Dry Ginger Ale had a pronounced paper taste.

A. That was due to the fact that the poor quality of the paper, the kraft coated with shellac is not a good quality paper like the express paper that we ordinarily used as a base and I, therefore, noted it gave this taste to the ginger ale.

Q. 31. Then, on August 19th, the same date, I note that you opened two bottles of Canada Dry Ginger Ale with the regular glazed paper spot and in that case you said the ginger ale had a full flavor.

A. Yes.

Q. 32. And that is the ordinary paper that you ordinarily used?

A. The regular glazed paper.

Q. 33. My understanding is that you keep opening these bottles from time to time to see what the condition of the cap is?

A. Yes, and the condition of the beverage.

Q. 34. And how long did you continue that investigation as to the quality of this particular thermoplastic cement?

[fol. 643] A. Well, they were continued until about the end of the year, the first investigation, but we never actually stop running investigations on a laboratory basis. We still have some bottles, not one of the originals, but I still have bottles that were put up from time to time, maybe not more than a year and a half ago.

Q. 35. During 1932, what was the largest amount of foil that you coated with this 4620?

A. The largest amount of foil was probably what we would call half a roll or half a spool, which would be a spool about this size.

Q. 36. That is about 12 or 15 inches?

A. I think they are 12 or 14 inches, and the amount that I coated was approximately half a roll.

Q. 37. About how many feet would that be, give us some rough idea, a hundred feet?

A. I do not know, but it was more than a hundred feet, it was several hundred feet.

Q. 38. Do you remember making up any considerable quantity of spot crowns with this particular thermoplastic in 1932?

A. This largest lot that I just mentioned was taken to the assembling department, and part of it was run on the machine, more than ten gross, probably fifteen gross.

Q. 39. And what was done with them?

A. Ten gross was loosely packed and sent to the Chicago branch, and returned to our office in the original package.

Q. 40. What was that done for?

A. To see how they would hold up in transportation.

Q. 41. You say they were loosely packed; what is the effect of that kind of shipment ordinarily?

A. If the spots were not tightly stuck, they would have [fol. 644] a tendency to be shaken off, at least, in the edges.

Q. 42. Is there any difficulty if they are loose in the edges?

A. Yes.

Q. 43. What is that?

A. There would be trouble in the crown hoppers, I believe.

Q. 44. Of the capping machines?

A. Of the capping machines, they might be torn off, loose edges.

Q. 45. When was that ten gross shipped to Chicago?

A. I do not know the exact date; but it was sometime toward the end of the year.

Q. 46. That is, 1932?

A. I think November or December of 1932.

Q. 47. I show you an envelope containing some spot crowns, and ask you to state what they are.

A. They are the first crowns that were made up in the laboratory with thermoplastic cement. I made these up personally.

Q. 48. On what date?

A. Prior to the 20th, probably a day or two earlier.

Q. 49. That is, prior to January 20, 1932?
A. Yes.

Mr. Scull: I offer these in evidence as Plaintiff's Exhibit 78.

(Marked Plaintiff's Exhibit 78 in evidence.)

Q. 50. There is a writing on here in pencil, "Al. spot—du Pont 4620 Thermo Plastic cement 1/20/32." Do you know in whose handwriting that is?
A. That is in my handwriting.
Q. 51. When was it put on there?
A. On 1/20/32.
Q. 52. Have these caps been in your possession since that time?
A. Yes.

[fol. 645] ANDREW WEISENBURG, recalled as a witness on behalf of the plaintiff, in rebuttal, testified further as follows:

Direct examination.

By Mr. Scull:

Q. 286. Mr. Weisenburg, I hand you a box of caps and I ask you to examine them, as I understand you have already done, and state what they are particularly as to the spots on them—I mean what is their present condition, and what is the spot itself?
A. These are center spot crowns made by what I call the Stewart or Nielson method.
Q. 287. Or White Rock?
A. The White Rock method. Instead of using plain tin-foil there is gutta percha on the back of the tin-foil.
Q. 288. In other words that particular spot has a cap which is exactly like the White Rock cap except there is gutta percha on the back of the foil itself?
A. That is correct.
Q. 289. On those caps, is the gutta percha adhered to the cork——

Mr. Warland: If your Honor pleases, I do not see how this has any bearing on the case at all.

Mr. Scull: This is an attack, your Honor, on the possibilities of that 1925 work which they have testified about. I think the pertinency will appear sufficiently later.

The Court: I will take it.

Mr. Warland: Exception.

[fol. 646] Q. 291. If these caps, having thereon the White Rock type of spot, but with gutta percha on the foil and under it in contact with the cork, were run through a drum, and if heat had been applied to the top of the spot, the plungers of the drum applying pressure to the heated spot, would the gutta percha adhere to the cork?

Mr. Warland: I make the same objection, your Honor, calling for a hypothetical condition that has not been shown to exist anywhere in the case by either side.

The Court: I will overrule that objection, it is purely a matter of opinion.

Mr. Warland: Exception.

A. If these crowns were given the proper heat and then placed into the pressure drum quickly enough so that they were still hot when placed in the cold drum, they would adhere.

Mr. Scull: I offer this box of caps in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 79 in evidence.)

Q. 292. You told us, Mr. Weisenburg, that you were doing research work for the Crown Cork & Seal Company in Baltimore during what years?

A. From June 1st, 1930, until August of 1934.

Q. 293. While you were in that research laboratory did you do any work on cements for securing center spots to crowns?

A. I did.

Q. 294. By whose direction did you do it?

A. Mr. McManus's.

[fol. 647] Q. 295. Was he in touch with the work you did at that time?

A. I reported to him directly.

Q. 296. Was he in your laboratory frequently?

A. Every time he came to Baltimore.

Q. 297. How frequently was that?

A. Every week that he was in the country.

Q. 298. Did you keep him advised of the work you were doing and the progress you were making?

A. I reported directly to him.

Q. 299. Now, did you do any work on a cement having nitrocellulose or gun cotton and resin in it?

A. I did, sir.

Q. 300. For the purpose of sticking center spots to cork?

A. I did.

Q. 301. When was that?

A. Beginning October 13, 1931. I have notes where I combined first nitrocellulose with various forms of rubbers, natural gums and eventually with what is known as rezyl resin. This rezyl resin is the typical thermoplastic resin which gives thermoplastic properties to the nitrocellulose film.

Q. 302. And your natural gums I understand are also thermoplastic but to a lesser degree?

A. They are also thermoplastic but they are not as compatible with nitrocellulose as the newer synthetic resins.

Q. 303. Now, did you get any successful samples of adhesive for center spots?

A. I have here a note dated November 17, 1931, where I mixed one-half a second cotton with Singapore Dammar #2 in a ratio of two parts of Dammar to one part of cotton and I have a note here—O. K. mix, good stick. I then have a note, "Made up a solution of rezyl #11, 50-50," and that meant 50 parts of resin to 50 parts of cotton. I have also [fol. 648] a note, "Made up a solution of rezyl 33, 50-50, and added 10 grams of each to above with #33 tackier"—I say—"to the above 33, tackier than with #11, helps stick." Then I have a note that we used 5 parts of five second cotton to five parts of #11 rezyl and that gave a ratio of one part of cotton to two parts of rezyl." I have "O. K., good stick." Following that I have the following, "Five parts of five second cotton with five parts of #33 rezyl, O. K., better stick." Then I have "One part of cotton to two parts of rezyl."

Q. 304. Now, did you make up or have made up for you under your direction center spot crowns with that cement?

A. Our usual procedure——

Mr. Warland: If the Court please, I cannot see the materiality of this testimony in any way; it is simply cumbering up the record, as far as I can see. They are suing us

on a patent which they admit uses thermoplastic cement that they bought in the open market, the same as we did. What bearing has this man's experience had three or four years before on the issue?

Mr. Scull: It isn't three or four years before.

Mr. Warland: It is 1931.

Mr. Scull: It was just before we got the resin from the duPont Company. We are simply carrying back the date of invention.

Mr. Warland: Does he claim to be the inventor?

Mr. Scull: I am not trying to argue the case now; I do [fol. 649] not think we ought to at this time.

The Court: I will take it.

Mr. Warland: Exception.

A. The usual procedure after making a mixture was with brushes to coat the foil. We usually coated six or eight feet. We had an apparatus in the laboratory whereby we could apply these spots to the crown. We then, with a hot punch, determined the adhesive property of the particular mixture we were working with. These crowns then were stored. We had a particular room and place where everything that was done afterwards was put away.

Q. 305. Did you make them up in that way with this nitrocellulose resin cement?

A. I made them up in the identical manner described.

Q. 306. Who was your assistant in that?

A. Mr. Ira Wilbur.

Q. 307. Was Mr. McManus shown these cellulose resin cement spot crowns after you had made them?

A. He was.

Q. 308. Was he told what the cement was?

A. He was.

Q. 309. I think you said that your notes indicate that this particular cement that you read into the record was used in November, 1931.

A. November 17, 1931.

Q. 310. Mr. Weisenburg, you were here and heard the testimony of Mr. Benno Cohn as to an alleged operation of a spotting machine in the spring of 1925, were you not?

A. I was.

Q. 311. After Mr. Cohn had partly described that process on last Friday did you, under my instructions, go to Balti- [fol. 650] more and start the arranging of a machine to

conform to the machine as he had described in his testimony?

A. I did.

Q. 312. And then subsequently you were here, were you, in the morning, during the day of the following Tuesday, when Mr. Cohn was under cross examination?

A. I was.

Q. 313. And you heard him give some further details of this machine which he said he used in 1925?

A. I was here and I heard him.

Q. 314. Then you went back to Baltimore under my instructions and completed the machine?

A. I did, sir.

Q. 315. Will you just describe the machine which you produced in this fashion?

A. Mr. Cohn——

Mr. Warland: I object to this; I can't see how that is competent or material.

The Court: If he can show that what your man said he did couldn't be done, it would be quite important. I do not understand the objection. Overruled, and you may have an exception. Proceed.

Mr. Warland: We had no access to this.

Mr. Scull: Of course you hadn't.

The Court: All right; that goes to the weight of it; it does not make it incompetent.

A. Mr. Cohn in his evidence described that he took a standard Clark Johnson assembling machine. He described——

Q. 316. Don't rehearse what he did, go ahead and tell us what you did; we can compare it later.

A. I went to Baltimore, where I found a standard John- [fol. 651] son assembling machine. In another department I found a spotting head of the Johnson type, that is, a center spot applying device. On this Clark Johnson assembling machine there was a device for applying paper collets of process paper into the shell to adhere to the cork disc. I had the mechanics remove this device and substitute there a center spot applying device. I had also constructed a heating device over the crown chute——

Q. 317. In the first place, what was the crown chute you had there?

A. The crown chute we had there was 24 inches long.

Q. 318. What did you do? Did you make any change in that?

A. I made a change in that; after hearing Mr. Cohn's testimony on Tuesday that the chute was 36 inches long, I called up Baltimore and directed them to alter the chute there and have it not less than 36 inches of heating surface on the crown chute. This was done.

Q. 319. Now, what about the heat over the rack, that is, at the point after the paper spot applying mechanism?

A. This was the identical heating mechanism which is on all Clark Johnson assembling machines.

Q. 321. And when you say assembling machines, you mean a machine used for putting the cork disc into the shell, and not the spotting machine?

A. That is correct.

Q. 322. What about the drum or dial at the end of the machine?

A. That was a standard Johnson drum, 48-plunger spring-actuated.

Q. 323. You did not make any change in that?

A. No change.

Q. 324. In other words, when you got through you had a [fol. 652] Clark Johnson assembling machine in which, in the place where the paper collets are ordinarily put in, you had a paper spot feed, and cutting punch, arrangement, and you had a long chute leading the crowns down to the dial, which was in advance of this spotting equipment, and you had gas heat on the 36 inches of this chute, is that right?

A. Yes, sir.

Q. 325. And then after the spotting the machine was exactly the same as a Clark Johnson machine in all respects except that you had suspended the operation of the cork inserting mechanism, is that right?

A. Exactly the same, except that I substituted a center spot applying device in place of the processed paper applying device.

Q. 326. And did you have any heat in the drum?

A. No heat in the drum.

Q. 327. Does that construction conform to your understanding of Mr. Cohn's description of what he said he had in 1925?

A. It does.

Q. 328. Have you any photographs of the machine as it was set up at that time?

A. I have.

Q. 329. Do these correctly represent the machine on which you made the tests about which I am going to inquire?

A. They do.

Mr. Scull: I offer these two photographs in evidence as Plaintiff's Exhibit 80.

(Marked Plaintiff's Exhibit 80 in evidence.)

Q. 330. What was the distance on this machine from the paper spotting attachment to the drum?

A. The distance from the center of the center spotting [fol. 653] exit to the entering punch of the pressure drum was exactly 36 inches.

Q. 331. And how much on the Johnson machine of this space is covered by the heaters?

A. On the machine I used the length was 15 inches.

Q. 332. Is that the regular type?

A. That is the usual distance. Some people may use a few inches more or a few inches less.

Q. 333. What arrangement did you have for supplying the heat to the chute; what about the gas supply?

A. The mechanics, in making up this heating arrangement which was over the crown chute found they could not get sufficient gas into the burner with one tube and it was necessary to place therein two, which can be plainly seen on the photograph.

Q. 334. How far does the cap travel from the time it passes the last heater on the chute until it reaches the center spot?

A. That dial is 12 inches in diameter which gives you a possible circumference of 36 inches and it runs one-half of that circumference, 180 degrees or approximately 18 inches.

Q. 335. Now, you were supplied with some rolls of coated tin-foil, were you not?

A. I was.

Q. 336. And you used them in the test which I am about to inquire about?

A. This part of the roll used in the test.

Q. 337. I show you Plaintiff's Exhibit 77 for identification and I ask you if you know what that is?

A. That is a remnant of the roll that I used in the test.

It is tin-foil approximately 3-½ to 4/1000ths thick, backed with surgical tissue and interlined with oil paper.

[fol. 654] Mr. Scull: I offer this Exhibit 77 for identification in evidence.

(Plaintiff's Exhibit 77 for identification now received in evidence.)

Q. 338. Now, did you make some center spot crowns on this machine which you have been telling us about which is shown in the photograph, Exhibit 80?

A. I did.

Q. 339. Tell us what you did.

A. Preliminary to running I ran the machine empty with the heat turned on—the burner above the chute. The actual length of this burner is 37 inches. I ran the machine empty with this heat on the burner for approximately one-half an hour.

Q. 340. What was that for?

A. That was to be sure that the chute had sufficient heat or a running condition, in other words an operative condition.

Q. 341. Then, what did you do?

A. After I considered the heat as high as would be feasible in practice so that it would not scorch the decorations I ran the crowns through the machine applying this particular foil described to the natural cork discs.

Q. 342. Where did you get the natural cork discs?

A. I had them taken out of the warehouse, they were a standard production, natural cork discs with paper backs.

Q. 343. You mean by paper backs—where the disc is fastened to the shell by means of a paper collet that has been stuck in adhesive?

A. Yes.

Q. 344. And adhesive which is heat-fusible?

A. That is correct.

Q. 345. What next did you do?

[fol. 655] A. I ran approximately 30 to 40 gross and then I took a sample from the last part of the run.

Q. 346. Were you using this foil of Exhibit 77 in this test?

A. I was.

Q. 347. Then, what did you do?

A. While the run was still on, to get the other condition described, that is the possibility of heat over the rack——

Q. 348. As well as on the chute?

A. As well as on the crown chute, I stuck my finger in the rotating dial stopping the feeding of the crowns so that I would have an empty space to differentiate the first test from the second. I then turned on the heat over the rack. I then had this condition, I had 37 inches of heat on the crown chute and 15 inches of heat on top of the spotted crowns into the rack. These had entered the cold pressure drum.

Q. 349. Now, what degree of heat on each of those two tests, did you have on the crowns as they came down the chute?

A. In starting the test when I began to run the crowns I turned on the heat until the cork discs were turned black—burned—and I then regulated the heat from what I thought was the maximum amount of heat that I could put into the cork disc without scorching or damaging it.

Q. 350. And does the same thing apply to the heat which in the second test you put on the spots as they went along the rack?

A. Practically the same condition except for this; in applying the heat to the foil I had to be careful that there was not too much heat to turn up the edges, I crowded all the heat in that I could possibly get.

[fol. 656] Q. 351. Did you have any way of indicating what the amount of heat was? Supposing there was no spot on the crown, what happened?

A. It was indicated by the fact where the spotting mechanism failed to function it turned the cork black—burned. When the spot was on the cork this would not happen.

Q. 352. In other words you had enough heat on that crown after it had left the spotter or spotting attachment so that unless the foil was actually on there it would scorch the cork, is that right?

A. That is correct.

Q. 353. Now, have you any samples which you made in these two tests?

A. I have.

Q. 354. Will you produce them. First let us have the one where you had heat on the chute only.

A. Right here (handing to counsel).

Q. 355. You have handed me a bag marked, "Regular production natural cork paper-backed crowns, heat on the

37-inch crown chute only, low pressure gas, 160 r. p. m's, November 14, 1935." That I assume is in your handwriting?

A. It is.

Q. 356. Did you make that entry at the time that you made the tests?

A. I did.

Q. 357. This bag shows some of the crowns which you made in the first test under the conditions indicated, and what I have just read into the record?

A. It contains what I consider a representative sample of the run.

Q. 358. What part of the run were these taken from?

A. From the end of the run.

Q. 359. After you had made a great many others on that same run?

A. That is correct.

[fol. 657] Mr. Scull: I offer this in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 81 in evidence.)

Q. 360. I note, Mr. Weisenburg, that many of the crowns in this bag which is now Plaintiff's Exhibit 81 have no spots on them. Did they all have spots on them when you put them in this bag?

A. They did.

Q. 361. Why then are they missing on some of them?

A. Because the center spotting operation as performed was not satisfactory or did not function properly.

Q. 362. Were there spots on them at one time?

A. There were.

Q. 363. They have since come off?

A. They have come off.

Q. 364. After you put them into this bag, how have these caps been treated?

A. I brought them to Brooklyn and I kept them in my room in my possession.

Q. 365. That is they have not been subjected either to any unusual heat or unusual cold or any unusual handling?

A. They have had the proper treatment, that is, they have not been touched.

Q. 366. In carrying them around in this bag, is that about the equivalent of loose packing of crowns as they are ordinarily shipped?

A. More or less it is.

The Court: The spots that came off are still in here?
The Witness: Yes, your Honor.

[fol. 658] Q. 367.—Now, some of these spots are adhering, are they not?

A. They are.

Q. 368. And have you examined a considerable number of them?

A. I have.

Q. 369. In your opinion, would it be possible to use these crowns in this condition in a bottle capping machine?

A. You could not use this material in a modern capping or bottling machine, in any crown feeding mechanism, the spots would come off.

Q. 370. Is the bottling capping mechanism used today any different in principle or general arrangement than what was used in 1925?

A. The principle is exactly the same, there are some refinements. The usual crown hopper of a bottling machine will carry up to 30 or 40 gross of crowns and are agitated by a rotating member. They usually have on this rotating member fingers springing back so as not to damage the crowns. The crown hopper is so designed that the crowns will come down all in one direction.

Q. 371. With the cork side up?

A. With the cork side up or with the shell up.

The Court: Whichever way you arrange that?

The Witness: Whichever way you desire them to come up. In running, in agitating these machines today the machines run as high as 116 a minute. The usual small plant may only cap 30 or 40 bottles a minute, but the hopper will rotate at 30 or 40 revolutions a minute more or less.

These spring actuated fingers in the hopper base which is [fol. 659] rotated will make the crown shells enter the proper position so as to run down the crown chute all in one direction. This means they are agitated, there is a tendency of the edge of the metal shell during that time to catch the edge of the small diameter facing this, and lift them from their position.

Q. 372. Now, in practice, what is the fact as to the surfaces of these spots, I am talking about the regular commercial practice, is there any evidence of marking on the face of

those spots after they have gone through the capping machine showing that the edges of other crowns have wiped across?

A. It is obvious when you have a soft material like tinfoil and a little harder material like aluminum, and you have the metal edges of shells hitting against them they are going to make that metal disc.

Q. 373. Is the construction of those capping machines as far as this crowning attachment is concerned any different today from what it was in 1925?

A. Substantially no different.

Q. 374. By the way, I think there was one thing I did not ask you about. In this test machine that you have in Baltimore, at what speed did you run it in making these crowns in Exhibit 81?

A. I had this machine connected to a Llewellyn drive which enabled me to get the exact speed I wanted.

Q. 375. What was that?

A. 160 revolutions per minute, which in other words enables you to spot 160 crowns per minute.

Q. 376. And that was the speed at which you understood Mr. Cohn to say that he had operated this machine which [fol. 660] he says he operated in 1925?

A. That was my understanding.

Q. 377. Now, have you any samples of the tests that you made where you had heat on both the chute and the rack, and if so, will you produce them?

A. I have (producing samples).

Q. 378. You have handed me a bag bearing the notation, "Rack production metal cork paper back crowns heat on 37-inch crown chute heat on 15-inch strip heater over rack. Low pressure gas 160 r. p. m. November 14, 1935."

These contain the spots made under the conditions indicated on the envelope that I have just read into the record, is that right?

A. That is correct.

Q. 379. Were these also taken from the end of a comparatively long run that you made?

A. They were.

Mr. Scull: I offer this package of spots in evidence as Plaintiff's Exhibit 82.

(Marked Plaintiff's Exhibit 82 in evidence.)

Q. 380. Similarly I note in some cases here there are no spots on the crowns. What is the fact as to the original condition before these crowns were put into this bag, did they have spots on them?

A. Practically all of them.

Q. 381. Well, all of these went through the spotting apparatus?

A. All of them went through the spotting apparatus.

Q. 382. And all of them had a spot brought down on them?

A. That is correct.

Q. 383. And I suppose the reason they are not here now [fol. 661] is because they have become loosened, is that right?

A. I imagine so.

Q. 384. I notice that in a number of cases here the spots are badly out of center, was that more or less a characteristic of the run?

A. It is.

Q. 385. That is, it occurred with any considerable frequency, did it, in the operation?

A. Quite frequently.

Q. 386. In the second test my understanding is you had the heat on to the same degree so far as the chute is concerned that you had on the first test?

A. That was not altered in the run.

Q. 387. And the heat in the second test so far as it was applied along the rack was as high as you could get it without injuring the foil, is that correct?

A. That is correct.

Q. 388. And this bag, I suppose, also was brought up by you from Baltimore personally and has been in your possession ever since in the hotel?

A. That is correct.

Q. 389. And it hasn't been subjected to any undue harsh treatment?

A. No.

Q. 390. Have you examined a considerable number of the caps made in these tests which resulted in Exhibits 81 and 82?

A. I have.

Q. 391. What would you say as to the commercial possibility of using the caps of either of these tests in capping machinery?

A. The first test where I had heat on the chute alone, you could not send them out of the factory; they are valueless. In the second test with heat on the chute and heat on the rack, they are a little better but they are not what I consider commercially stuck. They could not be kept in storage, they could not be sent through transportation, and they [fol. 662] could not go through the hopper and function as our standard product must function.

Q. 392. If some of these caps of Exhibit 81 or 82 which have the centers adhering to them sufficiently to hold them in place and where the spot is centered were again passed under considerable heat over a rack on an assembling machine and then through the drum and under the cold plunger; would that improve the adherence of the spot to the cork?

A. If you applied the heat properly and close enough to the pressure drum it would increase the adhesive properties of this material.

Q. 393. You think it might be done to such an extent you could get by with it, do you?

A. I do.

Q. 394. And I presume I should have asked you this, on the second test you also ran it at 160?

A. The same speed, same crowns.

The Court: Why was it there were so many off center?

The Witness: Due to the fact that this material is not properly tacky, and the heat was not applied at the proper place. You have 18 inches in that rotating dial, you have 5 inches from the edge of the rotating dial to the center spot applying mechanism, that is approximately 22 or 23 inches. In this period the crown cools sufficiently that it is not hot enough to keep that spot in its position. You have a stop and go motion.

Q. 395. Mr. Weisenburg, in this particular case you were using a solid smooth-faced punch, were you not?

A. I was.

[fol. 663] Q. 396. Do you remember Mr. Cohn's testimony was that on some of their present machines they use that sort of thing; but they also use a cutter and punch in which the cutter has been hollowed out and there is a pressure inside of it so that the spot, while it is cut out the full diameter by the outside of the punch, of course the presser does

not extend to the periphery of the spot. You understand that construction, do you not?

A. I do, sir.

Q. 397. My recollection is that in this 1925, about which he has testified, that this latter was the form which was used. Now, what, in your opinion, would be the difference, if any, in the results obtained if you had used that later type of cutter and presser?

A. Why, it is obvious to my mind where you push a spot on the heated cork with a full diameter of that spot you are bound to get a better adhesion than where you apply it to the heated cork with one of lesser diameter.

Q. 398. In other words, with the two-section, or with the internal plunger type, the sticking at the edges would be wholly dependent upon the amount of heat which you would get into the spot, plus the pressure of the drum plunger, is that right?

A. Correct.

Q. 399. Whereas, with the arrangement which you had, the edge got the same pressure as any other part initially by the punch?

A That is correct.

The Court: His method would be more likely to center them, wouldn't it?

The Witness: No, sir.

[fol. 664] The Court: Because it would be sloppy at the edge?

The Witness: Because the centering property is due entirely to the tackiness of the particular adhesive you are using. You see, if you are running, let us assume, at 180, which would be three a second, you have just that instant to place that center spot there. The material must be tacky enough to stay there until you come to the next station, where you can bump it again and keep it there. The initial placing of the spot on the cork is rarely sufficient to keep the spot in its place, it must be immediately re-pressed, and then go into a presser dial so as to set that under pressure. That is the function of very thermoplastic cement.

Q. 400. In other words, as I understand you, and further answering his Honor's question, the spot is always placed centrally initially, is it not?

A. Absolutely.

Q. 401. And that is, because the mechanism is such that it is bound to strike there?

The Court: But I thought that small area pressed might perhaps cause it to remain on center for the next stop rather than where the pressure was extended over a larger area with the possibilities of its not taking effect throughout the whole area.

Q. 402. This punch, as I understand it, is driven downward positively, is it not?

A. Yes.

[fol. 665] Q. 403. So that you have the full power of the machine back of it?

A. Yes.

Q. 404. Now, have you also brought to us some spot crowns made recently on the regular machines of the plaintiff, using tin-foil, and on the same crowns, that is, the natural cork crowns that you have used in making Exhibits 81 and 82?

A. With the coated tin-foil and surgical tissue I also had the identical tin-foil uncoated. I took this with me to Baltimore, where I combined it with our standard gutta percha. I then ran it in our standard center spot machine with the identical crowns out of the same box that I used on the other two tests, and I ran them at 520 per minute. These are the crowns. (Handing to counsel.)

Q. 405. The bag you have handed me is marked "Regular C. C. and seal C. S. Operation natural cork processed, same foil—tin and usual tissue."

A. No, the same tin as used on the tissue test.

Q. 406. "The same tin as used on the tissue test and standard gutta percha 520 r. p. m's, November 12, 1935."

A. Yes, sir.

Mr. Scull: I offer that in evidence.

(Marked Plaintiff's Exhibit 83 in evidence.)

Q. 407. Now, in comparing the spots of this Exhibit 83 with the spots of Exhibits 81 and 82, aside from the difference, if any there may be in resistance to the moving, is there anything that physically indicates the difference in the adhesion?

A. One of the usual tests in the adhesive properties of [fol. 666] spots adhered with gutta percha is the tackiness

or the draw when you pull the metal foil from the cork crown.

Q. 408. Now, when you pull one of these crowns of Exhibit 83 what is the effect so far as the gutta percha is concerned?

A. It more or less sticks to the cork disc.

Q. 409. And what is the fact so far as these crowns of Exhibit 82, for instance, which had the heat on both the chute and the rack?

A. It does not adhere to the cork.

Q. 410. Now, in making spot crowns, what would you say as to the effect of speed on any given set of conditions, so far as adherence is concerned—is it easier to make the spot adhere at a slow speed than at a high speed?

A. It is easier at a slow speed.

Q. 411. Why is that?

A. Why, you can have better control, you can get better heat control, and your mechanism is running much slower, and it is easier to function at 160 or 200 than at 520.

Q. 412. And you have a longer dwell of your plunger?

A. Yes, your entire cycle is slowed up in that ratio.

Cross-examination.

By Mr. Warland:

X Q. 413. I believe you told Mr. Scull that in 1931 you were experimenting, under the direction of Mr. McManus, on some thermoplastic cement; is that correct?

A. That is correct.

X Q. 414. And that experiment was not very satisfactory, was it?

A. I marked it "Very good stick" in my notebook.

X Q. 415. Well, if that was a good stick why did the [fol. 667] Crown Cork & Seal Company buy No. 4620 duPont?

A. I had nothing to do with that.

X Q. 416. Now, you say you saw some machines of the Crown Cork & Seal Company of the standard Johnson type. What do you mean by that?

A. I said they have the Clark Johnson assembling machine.

X Q. 417. Such as has been used for years?.

A. Such as has been used for years and they also had a

screw cap department, and in the screw cap department this 31-millimeter center spot machine.

XQ. 418. I simply asked you whether they had the Clark Johnson machine?

A. And I answered it, I think.

XQ. 419. And they used that while you were there in 1930 and 1931?

A. They may have, for all I know.

XQ. 420. Now, you have produced some caps here. As I understand you, you got the heat very great and some of them are scorched, is that right—in your experiments?

A. That is right.

XQ. 421. Have you any of those scorched discs here?

A. I believe there may be some in there.

The Court: Some what?

Mr. Warland: Where the cork was scorched by the excessive heat, your Honor.

XQ. 422. Well, this cork that came out of one of these bags from 81 or 82, has on the back of it Cerveza Diamante, and all crown caps that you experimented with here recently have that name on the back?

A. They are all out of the same box.

[fol. 668] XQ. 423. Now, the cap that I hand you is one that came out of one of those bags. Is there any evidence of scorching on the cork there?

A. No, sir.

The Court: I understood him to say that these exhibits came from the last run and the scorching occurred when he was experimenting before he started that final run. Maybe I am dense, but that was my understanding. (To witness): Is that what you said?

The Witness: That is correct.

XQ. 424. So you did not bring any scorched ones here?

A. There may be, I don't know.

XQ. 425. But the ones you did produce, you did not mean to have them scorched?

A. Of course not.

XQ. 426. Now, will you please feel the facing on that cork; hasn't that been waxed?

A. This is our regular production natural cork crowns that has gone through the processing, the waxing operation.

X Q. 427. Do you wax all your center spots in the Crown Cork & Seal Company?

A. We do not; we give them a very slight waxing.

X Q. 428. All of them?

A. All of them.

X Q. 429. What is that for?

A. It is to help the feeding of the cork disc into the cork hopper. Where you do not wax the cork disc slightly there is a terrific abrasion and resistance to the composition. It is very hard to feed composition cork disc in the assembling without some wax on the cork..

[fol. 669] X Q. 430. You can tell by the feeling of that that there is wax on it, can't you?

A. Yes, I am very familiar with this operation.

X Q. 431. Well, isn't that waxing to prevent—or primarily to prevent—oxidation of the cork, to prevent its discoloration?

A. I could write a thesis on that.

X Q. 432. I am just asking you to say yes or no, not write a thesis. Isn't is a fact that that waxing is on there for the purpose of preventing oxidation and discoloration of the cork?

A. To help prevent discoloration, but when you say oxidation you will have to define that much better before I can answer you.

X Q. 433. It is put on them for the purpose of preventing discoloration, is that right?

A. That is correct.

X Q. 434. Now, you were speaking of the amount of pressure, or rather, the difference of the amount of pressure where the plunger would go the entire diameter of the crown cap and where the plunger was smaller and only covered the center spot. Isn't it a fact that all these crown caps are somewhat curved on the top, in other words, there is not a perfectly flat surface, isn't that right?

A. You mean the cutting die as used?

X Q. 435. Isn't the crown cap itself curved somewhat?

A. Absolutely, it has a radius.

X Q. 436. So that if the pressure went all over the crown cork it would not adhere in the center as strongly as it would on the side?

A. But the center spot is not adhered to the shell, but to the cork.

X Q. 437. But the amount of pressure that comes down, [fol. 670] if it is directed entirely on the center spot, it presses harder on that center spot and adheres more than it does when the pressure goes the full circumference of the shell?

A. I cannot agree with you.

X Q. 438. I show you another one that came out of one of your exhibits here. Hasn't that got a depression or a scoring mark where the center spot plunger has hit it?

A. That is the mark that the center spot plunger made on the cork disc, that is correct.

X Q. 439. And that plunger is applied more forcibly there, hits that particular spot harder than as though the plunger were large enough to go the entire area of the cork?

A. I am sorry, but I don't understand that question.

X Q. 440. All right, if you have a small pressure spot plunger and pressure is exerted on that one particular spot it adheres very tightly there, doesn't it?

A. Yes.

X Q. 441. Now, when you said you applied heat on this machine where you say you carried out the same process you heard Mr. Cohn describe, did you try to retain that heat in any way, I mean did you put anything over the gas flame to keep it nearer the operating parts or didn't you?

A. As I stated before I had 37 inches of heating element. I have here a drawing in the exact dimensions. There were 96 holes 3/8ths of an inch apart drilled with a No. 53 drill and the overall length of the burner was 57 inches.

X Q. 442. You did not put any hood over the pad in trying to keep that heat in one particular place?

A. In what place are you talking?

X Q. 443. Prior to the time that the cork disc entered the [fol. 671] spotting attachment.

A. There was the usual cover on this rotating dial that is on all the Johnson machines. It is a cast iron cover with a slot approximately ½ an inch in the opening. In other words the crowns are confined in this slot which is placed on the rotating dial. You can probably see it on the pictures there.

X Q. 444. But you did not take any means to keep that heat concentrated on the cap before it got to the spotting attachment?

A. All I could do or could have done was to cover that half inch slot in the center, outside of that it was covered.

X Q. 445. You have produced a box of caps marked Plaintiff's Exhibit 79 which is as I understand you one where the center spot was inserted in accordance with the old Millis type, namely, flange bit into the cork and also gutta percha was used. Now, if the gutta percha was properly applied, of course, the spot would stick without that flange, wouldn't it?

A. When the gutta percha was properly applied you would not need that flange.

X Q. 446. Here is one of the caps that was taken out of this box Exhibit 79, does the flange show through the cork disc?

A. You can see a mark on the back of the disc of the circular scoring knife.

X Q. 447. I show you a cap that was shown to Mr. Reed of the Gutta Percha Company this morning to which he secured while on the stand a strip of foil with surgical gutta percha. That adheres to the cork, does it not, to a very considerable extent? Don't pull it off, don't pull it all off, pull half off if you like.

A. It adheres to the cork to some extent, yes, sir.

[fol. 672] X Q. 448. Of course, if the cork was heated more or if the foil was heated more and considerable mechanical pressure was applied it would adhere a great deal stronger, wouldn't it?

A. It certainly would.

Mr. Warland: I offer that cap in evidence.

(Marked Defendant's Exhibit FFFFF in evidence.)

X Q. 449. When you made these tests runs at Baltimore recently, did you apply heat and pressure simultaneously?

A. Where?

X Q. 450. Anywhere.

A. I applied heat and pressure simultaneously to this extent that whatever heat was available in the cork disc when it got under the center spot mechanism I applied pressure there and heat.

X Q. 451. Did you have a hot cutting punch?

A. I had a cold cutting punch.

X Q. 452. I show you a letter on the letterhead of the Standard Crown Company, dated January 6th, 1935, is that your letter?

A. That is my letter and my writing.

X Q. 453. I show you another letter dated February 4, 1935, addressed to Mr. Gutmann, was that your letter?

A. This was written to Mr. Gutmann en route west.

X Q. 454. And Gutmann & Company, Mr. Gutmann or Mr. Cohn asked you what you could tell them about this old Standard Seal or American Cork & Seal cap?

A. They did.

X Q. 455. And these letters were written after the conversation that you had?

[fol. 673] A. After telephone conversations where they tried to meet me.

Mr. Warland: I offer the letters in evidence.

(Marked Defendant's Exhibit GGGGG in evidence.)

Redirect examination.

By Mr. Scull:

R. D. Q. 456. The machine which is shown on Exhibit 80, the photograph, Exhibit 80 is still in the same condition as shown in those photographs in Baltimore, is it?

A. It is, sir.

R. D. Q. 457. And could you repeat the tests which you had here in the presence of other people, the other side if they wish?

A. I can.

Mr. Scull: I now make the offer to repeat those tests at any time to the other side. I think it would be obvious, your Honor, we couldn't very well have inter-party tests in view of the time which we had to do this in.

R. D. Q. 458. About how many hours' work, how many mechanics did you have, do you suppose you have had since last Friday to change over this Clark-Johnson machine into the condition shown in the photographs, Exhibit 80?

A. I had as high as 12 men working on this job.

R. D. Q. 459. Did they work Sunday?

A. They worked Sunday, they worked all day Saturday until midnight, they worked all day Sunday until midnight and Monday, and, of course, Tuesday I called them up at [fol. 674] the recess about quarter after one and told them

to change the hopper, the crown chute so I would have over 36 inches of heating on the crown chute. They worked all day, and I arrived, I left here on the 5:35 train and I arrived at Baltimore at 8:45, was in the plant about 9:10, and we worked until I think it was the 2 o'clock sleeper that I came back on to New York. Of course, the machine was in working order when I got there.

R. D. Q. 460. Some questions have been asked you about pressure of this crown in making these tests. What is the fact so far as the pressure per unit of area is concerned if a punch is pushed down positively, does it make any difference whether the area of the punch is large or small under such conditions?

A. I may not be correct, this is pretty fast. I think that if you apply a certain amount of pressure, whether the diameter for example were one-half inch or one inch, I think the total amount of pressure applied would be the same.

R. D. Q. 461. What is the limit when you bring a punch down on top of this crown, what is the limit of pressure so far as possibilities are concerned?

A. You mean in actual production?

R. D. Q. 462. Yes.

A. Well, we tried——

R. D. Q. 463. I do not mean in pounds, but isn't there something which determines that, can you squeeze it indefinitely?

A. No, you cannot.

R. D. Q. 464. What is the limit?

A. In the first place these crowns are held on a cold roll flange, in other words we have only got a little bit of adhesive holding the crowns.

R. D. Q. 465. In other words the crown is supported at [fol. 675] the side and not in the center?

A. Not in the center.

R. D. Q. 466. So whether it is curved or flat on the bottom does not make any difference?

A. Yes. Of course, we have a punch underneath here to help hold it in position, a standard punch underneath, so if you inadvertently hit it too hard it won't jump out of these little slides. That is standard on almost every machine of this type. We try in center spotting to put as much pressure as we can with this punching operation and

applying operation so we have a direct contact with the cork and thermoplastic adhesive.

R. D. Q. 467. Is there any limit as far as the cork itself is concerned?

A. Yes, there is a limit.

R. D. Q. 468. You couldn't go on pressing the cork indefinitely?

A. No, you would touch the crown.

R. D. Q. 469. It would collapse, the cork would collapse?

A. No, it would come back but you would distort the shell.

R. D. Q. 470. And that would be true regardless of whether the area of pressure were large or small?

A. I think so.

R. D. Q. 471. You saw Mr. Reed make this test which resulted in Exhibit FFFFF?

A. I did.

R. D. Q. 472. You saw him hold the gutta percha in the flame of a match until it was softened?

A. I did.

R. D. Q. 473. And then he applied it to the cork?

A. Yes.

Mr. Warland: The tin-foil.

R. D. Q. 474. The tin-foil to the flame of the match?

A. Yes.

[fol. 676] R. D. Q. 475. Is there any such operating condition possible in a crown cork spotting machine?

A. That is where you heat the foil?

R. D. Q. 476. Well, heat with a direct flame on it in that fashion. For instance, did you notice how long it was that he held that foil in the flame?

A. I did.

R. D. Q. 477. How would that compare with the time you would have in a machine at 160 a minute.

A. Well, you would have 160 a minute, you would have 15 inches of heating above them, and the average distance between the crowns is approximately an inch and a half. That would give you 10 crowns, that would be 1/10th of 160.

R. D. Q. 478. 1/16th of a minute?

A. 1/16th of a minute you would be heating.

R. D. Q. 479. What would be the difference, if any——

The Court: A little less than 4 seconds.

R. D. Q. 479. What would be the difference, if any, in applying the heat of a flaming match to the foil with the foil out in the air and applying that same flame to the foil which is down on top of a crown?

A. There is quite a distinctive difference, because we have found in the many tests we have made that taking any thermoplastic and heating it in the open air is quite distinctive than when confined over the cork. In heating you generate gases, the tendency is to lift up, lift the foil up in the cork. Another feature in heating in this manner is in going over the rack your heater is in straight line, and there is a limit in the amount of heat you can apply because if you apply [fol. 677] too much you will burn the area beyond the center spot. So it is usual to use a spot heater for that purpose, which is the diameter, a little less than the diameter of the center spot disc.

R. D. Q. 480. You mean a plunger, a heated plunger?

A. A heated plunger that is just slightly under the diameter of the center spot disc. That enables you to apply much more heat in a defined area than by any strip heating method.

R. D. Q. 481. By strip heater you mean that long gas flame where the spot is traveling under it?

A. That is correct.

Mr. Scull: That is all.

Recross-examination.

By Mr. Warland:

R. X Q. 482. You, of course, know of radiant heat, don't you?

A. Of course, I do.

R. X Q. 484. All right now, if you have enough heat to make a thing stick, it doesn't make any difference whether you get it from radiant heat from some part of the machine or whether you get it from one specific point such as a match, does it?

A. In heating in any manner whatsoever the effective amount of heat, that is the effective heat depends entirely—rather let me say the effective amount of heat available for using for adhesive purposes depends entirely on how you apply it. Now, I am not competent this quickly to answer your question and say that radiant heat or any other type of heat would be any more efficient. I am only concerned in

the effective heat that is applicable for use when we are center spotting.

[fol. 678] R. X Q. 486. Of course, you have got to get a certain amount of heat to make the gutta percha stick?

A. That is true.

R. X Q. 487. And if you get that amount of heat from some part of the machine that is sufficient, isn't it?

A. If you have a proper amount of heat and apply it at the proper place it will work.

R. X Q. 488. And as I understand the substance of all your tests in which you tried to controvert Mr. Cohn's testimony, your great trouble was that you didn't have enough heat, is that correct?

A. I could not get enough heat with the thermoplastic given me which was surgical tissue to effectively operate such a machine.

R. X Q. 489. Do you say surgical tissue has to have more heat to adhere than the ordinary kind of gutta percha?

A. I think so, about 20 degrees.

R. X Q. 490. Just a mere difference of 20 degrees?

A. That 20 degrees is an awful lot.

R. X Q. 491. You have during your career both as an engineer and a chemist, of course, conducted experiments on a great variety of subjects, haven't you?

A. I think so.

R. X Q. 492. Isn't it true that most of those experiments take a long time before you get successful results?

A. That is true.

R. X Q. 493. You wouldn't condemn a thing just because you tried an experiment for a few days and it didn't work out right?

A. You are talking now about any experiment?

R. X Q. 494. Yes, I am talking about any experiment.

A. That is true.

[fol. 679] Scott Ira Wilbur, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Doctor?

A. I wish to correct you, I am not a doctor.

Q. 2. Mr. Wilbur, where do you reside?

A. Baltimore.

Q. 3. And you are employed in the Crown Cork & Seal Company plant there?

A. I am.

Q. 4. As a chemist?

A. Yes, sir.

Q. 5. Are you a graduate chemist?

A. No.

Q. 6. What has been your chemical education?

A. I am a matriculated student at Johns Hopkins University. I have taken general chemistry, qualitative chemistry, medical chemistry, and an advance course in physical chemistry.

Q. 7. Now, in your employment in plaintiff's plant you are in the research laboratory?

A. Yes.

Q. 8. You work under Dr. Warth at the present time?

A. No, sir.

Q. 9. You did work under him at one time?

A. I did.

Q. 10. Did you ever work under Mr. Weisenburg?

A. Yes.

Q. 11. In the laboratory which he had there?

A. I did.

Q. 12. When did you go in Mr. Weisenburg's laboratory?

A. That was about the middle of 1931, as I remember it.

Q. 13. How do you fix that?

[fol. 680] A. Prior to that date I had charge of all the varnish material that the Crown Cork & Seal Company purchased; in other words, my duty was to control that. At that time we started a varnish plant and I was transferred to Dr. Warth's laboratory to the research department to do work in the varnish plant which was established at that time.

Q. 14. In this establishing of the varnish plant it threw you out of the work you had done before, and you were therefore transferred to Mr. Weisenburg's laboratory?

A. Yes.

Q. 15. Mr. Weisenburg has told us of some tests of nitrocellulose and resin cement. Do you know anything about them yourself?

A. Yes.

Q. 16. What did you have to do with that, if anything?

A. Mr. Weisenburg and I worked together on a great many things. One would do one thing and the other fellow would do another part of that same operation, and in conducting thos experiments on nitrocellulose, for instance, he would make up the formulas and I would test it.

Q. 17. Do you remember making these actual tests in nitrocellulose and resins?

A. I do.

Q. 18. And you remember using gun cotton in connection with those tests?

A. I do.

Q. 19. What is your recollection as to the character of the cement so far as the adhesion is concerned?

A. Well, we tried a number of things, of course some were not as compatible as others, but we found where we used synthetic resins we got some very good results.

Q. 20. Were you present in Baltimore at the time that this machine shown in the photograph marked Plaintiff's Exhibit 80 was operated, as Mr. Weisenburg has just [fol. 681] testified, and when the caps marked Plaintiff's Exhibits 81 and 82 were made?

A. I was.

Q. 21. And you heard his testimony this morning as to that machine and its operation?

A. I did.

Q. 22. You were there as an observer, were you?

A. Not only observed, but I assisted in the experiment.

Q. 23. So far as the degree of heat and the way it was applied and the way the spots were fed, the character of the machine, the spot machine, would your testimony be the same as that of Mr. Weisenburg in respect to those tests?

A. It would, identically.

Cross-examination.

By Mr. Warland:

X Q. 24. When did you first use nitrocellulose in your experiments for an adhesive?

A. You mean as a thermoplastic adhesive or just as an adhesive?

X Q. 25. As an adhesive for use in center spot crowns?

A. My recollection is that my first experience with thermoplastic cement using nitrocellulose was about back in November of 1931, but I don't remember the exact date.

X Q. 26. You did not know anything about 4620 in those days?

A. I was not familiar with that myself, no.

X Q. 27. How long were these experiments run that Dr. Weisenburg has testified to, I mean the machine experiments that were made within the last few days?

A. How long were they run?

X Q. 28. How long did the experiment take?

[fol. 682] A. Well, one experiment took about, well, let me see, about three hours. Another experiment took about approximately two hours.

X Q. 29. Is that all?

A. Of course, we made two different runs, that was counting the total experiments run.

GEORGE GOEBEL, recalled, testified further as follows:

Direct examination.

By Mr. Scull:

Q. 478. You were in charge of production of spot crowns in 1925 at the Crown Cork & Seal Company plant in Baltimore, were you not?

A. Charge of production equipment machinery.

Q. 479. And were you familiar with the production of spot crowns yourself?

A. Yes.

Q. 480. And you noted the character of spot crowns that were produced in 1925, did you?

A. I did.

Q. 481. And have you a knowledge of the degree of adhesiveness and how the spots stuck on?

A. I have.

Q. 482. And have you at my request—I am speaking now of tin-foil spots, which I understand were the only thing which you used in 1925.

A. That is correct.

Q. 483. Have you, at my request, examined the spots on crowns marked Exhibits 81 and 82—those of the Weisenburg test?

A. I have seen those.

Q. 484. And did you examine them?

A. I looked at them.

[fol. 683] Q. 485. And what would you say as to the commercial practicability and availability of the spots on the crowns of these two exhibits 81 and 82, in 1925? Could they have been used commercially?

A. No, these could not have been used commercially.

FREDERICK ERWIN FUSTING, recalled on behalf of the plaintiff, in rebuttal, testified further as follows:

Direct examination.

By Mr. Darby:

Q. 172. Mr. Fusting, when did the plaintiff first have any knowledge that the defendant was using a spotting machine in which the cork is heated in advance of the deposit of the spot on the cork?

A. In August of 1933.

Q. 173. You refer to a visit that there has been testimony about, to the defendant's plant?

A. Yes.

Q. 174. Prior to that the plaintiff had no knowledge that the defendant was using such a method?

A. So far as I know, they had not.

Q. 175. There have been some invoices put in evidence regarding the purchase by the plaintiff from the John A. Johnson Machine Works, in 1929, of a number of spotting machines. Do you know why those spotting machines were purchased?

A. They were purchased for shipment to Canada. Ordinarily we made all our production equipment, practically [fol. 684] all of our production equipment, such as assembling machines and spotting machines, in our own plant.

Q. 176. Do you know why you did not make these?

A. We did not make them at that time because we had a large schedule in our machine shop for various foreign plants.

Q. 177. And had Canada requested that you have some machines built for shipment to them?

A. I had had considerable discussion with the Canadian management and they wanted to get machines such as we were using in Baltimore, and we could not take them out of

production, nor did we have capacity at the time to build them in the shop.

Q. 178. And you asked Mr. Johnson to build these machines for you?

A. I had them ordered through the purchasing department.

Q. 179. Are you familiar with the circumstances surrounding the filing of the so-called divisional reissue patent 1,967,195 in suit, which was during its prosecution in interference with the Johnson patent 1,852,578?

A. I am familiar with it to this extent, I recall that you brought that Johnson patent to my attention I think the early part of 1933.

Q. 180. How long was that before the interference with Johnson was provoked?

A. My recollection is that the interference was provoked very shortly after that.

Q. 181. That was the first time you knew of the Johnson patent, with these method claims in it?

A. Yes.

Q. 182. Is the John A. Johnson Machine Works in any sense a competitor of the plaintiff in the manufacture of machinery for making crown caps?

A. No.

[fol. 685] Q. 183. Does the plaintiff sell crown cap making machinery to other crown manufacturers?

A. No.

Q. 184. Have you ever been through the crown manufacturing plants of any of your competitors in the United States?

A. I visited the Gutmann plant in 1933.

Q. 185. Aside from that?

A. I did not go through the plant at that time.

Q. 186. Aside from that visit?

A. I have seen, I think, a small portion of the plant of the Crown Manufacturing Company.

Q. 187. And do you know whether it is common practice for persons connected with the plaintiff company to examine or inspect plants of competitors in the industry?

A. No, it is not, with one possible exception.

Q. 188. What is that exception?

A. When we purchased—prior to our purchasing the assets of the Crown Cap Company, I assume somebody

went through there and saw what they had; I personally did not.

Q. 189. And that was about the time that you discovered the Johnson machine there and notified Johnson of his infringement, is that correct?

A. I personally did not examine, but someone in the organization who went through it, did, yes.

Q. 190. There has been some answer to interrogatories filed by the defendant here, and among the answers filed by the plaintiff are a list of licensees. What royalties did you receive from patents in suit during the last calendar year from these licensees?

A. During 1934?

Q. 191. Yes.

A. Approximately $47,000.

[fol. 686] Q. 192. Referring to Defendant's Exhibit XXXX and the advertising entitled "Spot Crowns," do you know who prepared that advertisement?

A. I prepared the script here, but I had nothing to do with the other part of it.

Q. 193. Before you published that advertisement in July of 1933, did you send similar notices to your competitors regarding these patents and offering to license them?

A. Yes, I think it was March of 1933 that we sent out a letter to all known as crown manufacturers.

Q. 194. And did you send an offer of license at that time to the defendant in this case?

A. Yes, a copy of that was sent to the defendant.

Q. 195. Have you a copy of the letter which you sent, here?

A. I have, yes sir; it is dated March 21, 1933.

Mr. Darby: I offer in evidence carbon copy used by the witness as Plaintiff's Exhibit.

(Marked Plaintiff's Exhibit 84 in evidence.)

Q. 196. Did you write this letter and forward it on or about the date mentioned, March 21, 1933?

A. Yes.

Q. 197. There has been some testimony regarding equipment ordered from the John Waldron Company by contract in August of 1933 for the coating of foil with nitrocellulose and resin adhesive. Have you examined your records to ascertain when that equipment was delivered and installed by the John Waldron Company?

A. It was delivered at the close of 1933 and the installa-
[fol. 687] tion was completed and operation started about April of 1934.

Q. 198. Have you at my request examined your records to obtain these invoices which I hand you regarding typical purchases of 4620 thermoplastic cement from the duPont Company?

A. I have.

Q. 199. Those records show the following shipments, "Two gallons, January 31, 1933; five gallons, May 15, 1933; eight gallons, December 27, 1933; five gallons, August 1, 1933; fifty gallons, March 23, 1934," and lots of 100, 200 and 500 continuing then on from 1934, is that correct?

A. That is correct.

Mr. Darby: I desire to have the record show that defendant's counsel is examining the invoices just read to the witness.

Cross examination.

By Mr. Warland:

X Q. 201. This bill of August 12, 1932, from the duPont Company, calls for two quarts of thermoplastic cement, at a cost of 99 cents. Is that the first time that you bought this 4620 from the duPont Company?

A. I think our records show this is the first purchase. This was at $1.75 per gallon, 99 cents for the two quarts, including 11 cents postage.

Redirect examination.

By Mr. Darby:

R. D. Q. 203. Mr. Warland has asked you with reference to one invoice that I neglected to read, namely, the one of August, 1932——

A. August, 1932.

R. D. Q. 204. For two quarts?

A. Yes.

[fol. 688] Recross-examination.

By Mr. Warland:

R. X Q. 205. You are familiar with the publication known as the Beverage Journal, are you not?

A. I know there is such a publication.

R. X Q. 206. I show you an issue of that paper dated June, 1930, page 5, containing an advertisement purporting to be made by the Armstrong Cork Company and referring to paper spot composition corks. Do you remember seeing that advertisement at that time?

A. No, I do not; I very seldom see these trade publications at all. I am not in the sales division, and rarely ever see the trade journals.

R. X Q. 207. You knew that various manufacturers were advertising composition corks with glazed paper center spots on that date and long prior to that date, didn't you?

A. I knew that; I did not know what any of our competitors were doing in the way of advertising. I had seen the product of certain competitors, I could not say specifically now, in the nature of paper spot crowns somewhere around 1930 or 1931, that I know of.

Mr. Warland: I offer page 5 of that publication in evidence.

(Marked Defendant's Exhibit HHHHH in evidence.)

Redirect examination.

By Mr. Darby:

R. D. Q. 208. Attention has been called to this advertisement in this publication, Exhibit HHHHH. As far as you [fol. 689] know, did the plaintiff have any idea how competitors were making these crowns?

A. As far as I knew, we did not.

Mr. Scull: I offer in evidence a certified copy of certain papers from Interference No. 66,201, Warth vs. Johnson, as Plaintiff's Exhibit 85.

Mr. Warland: Just a moment. I object to the defendant being bound by any proceedings in that interference.

Mr. Scull: We have had a great deal of talk about it.

The Court: You have talked about it a lot. I do not know how far it binds you. I will take it and find out. There has been surely plenty of talk about it.

Mr. Warland: Yes, there are certain papers that I used as admissions against interest.

(Marked Plaintiff's Exhibit 85 in evidence.)

Mr. Scull: I offer in evidence a certified copy of certain papers from Interference No. 60,878, Warth vs. Lange.

Mr. Warland: The same objection to that.

The Court: I will take it; I can't tell until I read it.

(Marked Plaintiff's Exhibit 86 in evidence.)

Mr. Scull: I offer in evidence a certified copy of the File Wrapper and contents of Johnson patent 1,852,578.

(Marked Plaintiff's Exhibit 87 in evidence.)

[fol. 690] Mr. Scull: And I offer in evidence, subject to withdrawal in the event that it is found to be a duplicate of defendant's exhibit, certified copy of the File Wrapper and contents of patent No. 1,899,783.

(Marked Plaintiff's Exhibit 88 in evidence.)

Mr. Scull: The plaintiff rests.

Benno Cohn, recalled as a witness on behalf of the defendant, in sur-rebuttal, testified further as follows:

Direct examination.

By Mr. Warland:

Q. 526. There was testimony given here by a man by the name of Szavo formerly in your employ, and he said that he saw Mr. Rasmussen trying to make center spots out of paper and secure them with silicate of soda in the Summer of 1920. Was Mr. Rasmussen with the Gutmann in the Summer of 1920?

A. No, Mr. Rasmussen came with us in September, 1920.

Q. 527. After Labor Day?

A. That is right.

Q. 528. Can you fix that date by refreshing your recollection from the books?

A. Yes.

Q. 529. Now, Szavo said he left there in September, 1921; can you state after refreshing your recollection from your books what day he did leave Gutmann's?

A. Yes, our time book shows he left September 16, 1922.

Q. 530. Now, you testified on your direct examination as [fol. 691] to a very considerable use of 4620 adhesive.

A. Yes.

Q. 531. And there was only one invoice I think from the duPont Company. Did you buy your adhesive direct from the duPont Company or did you buy it from a dealer who dealt in duPont Company materials?

A. We bought it indirectly.

Q. 532. From a dealer?

A. Yes, sir.

Q. 533. Have you got the invoices for those?

A. They are here.

Q. 534. Let me have them please.

A. Shall I get them.

Q. 535. Are they in this folder I hand you?

A. Yes, those are same of the invoices, many of them.

Q. 536. About how many would say there were?

The Court: Tell us between what dates you bought them and how much? Give us the beginning date and the last date, and the total that you bought, that is all we need. You need not tell us from whom they were obtained.

The Witness: There were small quantities the invoices for which are not here, five gallons or less, early in 1933. The first invoice I have here is 25 gallons on August 28, 1933——

The Court: You tell me what you have there, what was the first and what was the last and what is the total, let your assistant figure it up if you want to, it is a matter of computation.

[fol. 692] The Witness: The first date here is August 28, 1933.

The Court: And the last date?

The Witness: The last date here is December 3, 1934, and I can add it up pretty quickly.

Mr. Scull: I do not care whether it was a hundred gallons or a thousand gallons.

Q. 536. There was a sample of surgical gutta percha tissue produced this morning by Mr. Reed, is that the kind of gutta percha you used on these caps you sold to the Inecto?

A. Well, I take Mr. Reed's word for it, it looked the same, it was about that.

Q. 537. When the question of putting gutta percha on these caps for Inecto came up, did you discuss with anybody or did anybody in your plant discuss with Mr. Evans as to what quality of gutta percha was to go on, whether it was to be the surgical or the other kind?

A. Yes, we made samples of both, if I remember correctly we got two kinds of samples from Bishop which we made up samples from for Inecto, and they chose the surgical.

Q. 538. Now, testimony was given this morning by Mr. Weisenburg that he couldn't successfully adhere the spot to a cork with this surgical gutta percha on tin-foil. Just what would you say was the trouble with his experiments?

A. Well, I would like to examine his experiment before saying definitely, but my offhand opinion would be that he did not apply enough heat or he did not apply heat properly. However that may be, we did it.

[fol. 693] Cross-examination.

By Mr. Scull:

X Q. 539. Do you remember when you were on the stand before, Mr. Cohn, I asked you to give us the sales prior to 1928?

A. Yes.

X Q. 540. Have you got them?

A. Yes, they are as follows:

	Without Center Spots	With Center Spots	Total
1924	649,649 gross	729 gross	650,378 gross
1925	798,149 "	12,396 "	810,545 "
1926	1,000,897 "	11,089 "	1,011,986 "
1927	851,796 "	12,608 "	864,404 "

Redirect examination.

By Mr. Warland:

R. D. Q. 541. Mr. Scull asked you to produce all the correspondence you had with Inecto and you said you had all that was pertinent and then Mr. Scull asked you for all the correspondence with Inecto around that date, as well as bills and so forth. Did you give him those documents?

A. Yes, the following morning I went to the plant and I brought with me and gave to Mr. Scull or Mr. Darby all the correspondence we had about that date with Inecto, the Bishop Gutta Percha Company and the Beechnut Foil Company.

R. D. Q. 542. The total amount of your purchases of 4620 is as follows?

A. The total amount is 1105 gallons, consisting of 205 gallons in 1933 and 900 gallons in 1934.

Mr. Warland: Now, if your Honor pleases, I should like to renew the defendant's invitation to have you look at its plant.

[fol. 694] Mr. Scull: Yes, we will be glad to make any arrangements like that.

The Court: Well, I have considered it and I will be there at three o'clock this afternoon. Now, this is just for me to look at the plant and at the machine; you will not take any evidence, there will be no need for any stenographer, will there?

Mr. Scull: No, your Honor.

Mr. Warland: We will not need any stenographer, sir.

The Court: Very well. Now, the case is closed and I will ask you gentlemen to submit briefs on December 20th, all papers by December 20th.

IN UNITED STATES DISTRICT COURT

STIPULATION AND ORDER APPROVING STATEMENT OF THE EVIDENCE

The foregoing statement of the testimony, taken at the trial, having been presented to me, the same is hereby approved and allowed, and is ordered filed as a statement of the evidence to be included in the record on appeal, as provided by Equity Rule 75.

Dated, May 16th, 1936.

Marcus B. Campbell, U. S. District Judge.

Consented to. Gifford, Scull & Burgess, Solicitors for Plaintiff. Hauff & Warland, Solicitors for Defendant.

BLANK

PAGE

[fols. 695-728] PLAINTIFF'S EXHIBIT No. 1

530

C. E. McMANUS.
BOTTLE CLOSURE.
APPLICATION FILED NOV. 17, 1915.

1,339,066.

Patented May 4, 1920.

Fig. 1.

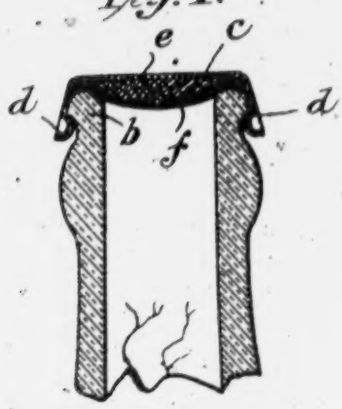


Fig. 2.

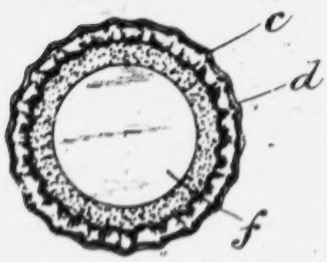


Fig. 3.

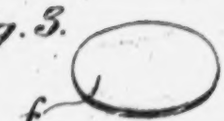


Fig. 4.



Attest:
E. Smith

Charles E. McManus Inventor:
by Frank P. Wentworth
his Atty.

UNITED STATES PATENT OFFICE.

CHARLES E. McMANUS, OF NEW YORK, N. Y.

BOTTLE-CLOSURE.

1,339,066. Specification of Letters Patent. Patented May 4, 1920.

Application filed November 17, 1915. Serial No. 61,908.

To all whom it may concern:

Be it known that I, CHARLES E. McMANUS, a citizen of the United States, residing at the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Bottle-Closures, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to bottle closures and more particularly to a type of metal caps containing therein a compressible disk adapted to engage and seat upon the lip of a bottle to seal the bottle.

In closures of this character the compressible disk is ordinarily formed of sheet cork or of a composition composed of granular cork, the particles of which are united by an insoluble, gas and acid proof, binder.

The type of closure referred to above, while extensively used by bottlers, has certain objectionable characteristics, the correction of which is the object of my invention.

In producing closures of this character for commercial use, it is practically impossible to secure disks, whether of cork or of a composition, all of which will have a perfectly smooth, continuous surface and have the same degree of compressibility.

The inequality of different disks is not apparent from inspection and can be determined only after the cap has been placed upon a bottle. If there be surface flaws upon the disk and if the compressibility of the disk be insufficient to permit the complete closing of these flaws, the gases within the bottle will, after the cap is placed upon a bottle, find a passage to atmosphere by reason of the defective sealing of the neck of the bottle, and thus cause the contents of the bottle to "go flat." Bottles thus imperfectly sealed are known in the bottling trade as "leakers" and the percentage of such "leakers" is sufficiently high to cause this defect to be a source of considerable loss. When bottling beer "leakers" will ordinarily develop during the sterilization of the bottled beer but it is not uncommon to have "leakers" develop even when the seal seems to be perfectly tight after a test by the bottlers.

In addition to the development of "leakers" by reason of defects in the disk, contact of the contents of the bottle with the cork or other material of a disk will have the effect of imparting an undesirable flavor or taint to said contents, a condition which is particularly true of some composition disks. Furthermore, there is a likelihood of small particles of cork being separated from the disk and falling within the bottle, which is more likely to occur with composition disks than with solid cork disks, although the latter are not free from this objectionable condition.

By my invention I provide a bottle closure having all of the desirable characteristics, so far as securing a tight joint is concerned, present in the ordinary closure having a cork or composition disk, and in addition thereto having the characteristics of protecting the contents of the bottle from contamination by contact with the disk and preventing the escape of particles of cork from the disk, into the bottle. Furthermore, the surface of the cushion of the disk exposed within the neck of the bottle is so formed as to present a smooth continuous surface and thus minimize likelihood of "leakers" while preserving all of the compressibility or elasticity inherent to the cork or composition disk.

The invention consists primarily in a bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a binding agent with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk; and in such other novel features of construction and combination of parts as are hereinafter set forth and described and more particularly pointed out in the claims hereto appended.

Referring to the drawings:

Figure 1 is a sectional view of a portion of the neck of a bottle showing my improved closure thereon, said closure being shown in section;

Fig. 2 is a bottom view of the closure;

Fig. 3 is a perspective view of the flexible disk; and

Fig. 4 is a perspective view of the compressible disk.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, the neck of the bottle is indicated at *a*, the configuration of the lip *b* of the bottle and the portion of the neck adjacent thereto being that ordinarily employed with bottle closures of the type to which this invention relates.

In the form of closure shown in the accompanying drawings, there is presented an embodiment of my invention which I preferably employ although it is not my intention to limit the invention to this particular form.

In this embodiment of the invention, I have shown at *c* an ordinary metallic cap having a convoluted rim *d* adapted to pass over and be clamped under the lip of the bottle. Seated within and united to the cap *c* is a disk *e* of compressible material. This disk extends to a point adjacent the flange *d*. The manner of securing said disk in its position relatively to the cap, may be that ordinarily employed in closures of this type, the union of the disk to the cap ordinarily including the use of a fusible binding medium interposed between the cap and the disk, and set in a manner to unite the parts by the application of heat and pressure simultaneously or successively.

The disk *e*, as shown in the accompanying drawings is what is known in the art as a "composition disk", being composed of granular cork formed into a sheet of the desired thickness by means of a binder having the same qualities of insolubility as the medium used in securing the disk in the cap.

A composition disk combined with a metallic cap, as heretofore described, is old and well-known in this art and I make no claim of invention thereto. The medium used as a binder for the granular cork, and in attaching the disk to the cap, are also old and well-known to those skilled in the art, and this old and well-known medium, or any other desired medium, fusible only at a temperature above that at which bottled beverages are sterilized, may be used.

My invention relates more particularly to a construction of closure wherein that portion thereof exposed to the liquids within the bottle is so protected as to prevent contamination of the liquid by contact with the disk, and the dropping of small particles of cork or other material of which the disk is composed, into the liquid. This construction also assists in securing a gas tight joint by the closure of any surface flaws or defects in the disk.

My invention contemplates the utilization in conjunction with the metallic cap *c* and compressible disk *e*, of a flexible disk *f*, superimposed upon the disk *e* and completely covering that surface area of the disk *e* which is exposed within the neck of a bottle when the closure is applied thereto.

This disk *f* may be made of a hard parchment paper, or of any other paper so treated as to make it non-absorbent. This flexible disk *f* is secured in place upon the compressible disk *e* by means of a binding medium, preferably such as that which is used as a bond for the granules of the composition disk or for uniting said disk to the metallic cap. By using this bond, the disk *e* and the disk *f* may be assembled in relation to the cap and to each other by one and the same operation if desired.

The purpose of the disk *f* is not to assist in forming the seal between the closures and the bottle lip but to prevent the presence of channels through which gas may escape and to prevent contact of the liquid with the compressible disk. To secure the desired action of the superimposed flexible disk *f*, I make it of a smaller diameter than the disk *e* and position the center of the disk *f* directly over the center of the disk *e*, thus exposing a sufficient portion of the surface of the disk *e* to permit the sealing of the neck of the bottle directly against the material of said disk. The width of this exposed portion is such as to bring the edge of the disk *f* up to the line of contact of the disk *e* with the lip of the bottle, thus insuring protection of the entire surface of the disk *e* within the neck of the bottle. Exactitude in the positioning of the disk *f* with relation to the disk *e* is of great importance as the projection of any portion of the disk within the area of the contact surface of the disk *e* would result in "leakers" and thus make the closure worthless. Accuracy in the positioning of the disk *f*, in the commercial production of caps of the character herein described, may be secured mechanically in a number of different ways and by means of a variety of different mechanisms and the manner of assembling the device, or the mechanism employed in so assembling it, is immaterial to the invention of this application.

It will be apparent that superimposing the disk *f* in the manner described upon the disk *e*, will have the effect of sealing all surface imperfections in the disk *e* about the center thereof and to a point co-incident with the point of engagement of said disk with the neck of the bottle. When the closure is in position upon a bottle, the disk *f* being non-absorbent, impervious to gas, insoluble and acid proof, will prevent contact of the liquid in the bottle with the material of the disk *e*. The thinness and flexibility

of the disk *f* will permit it to readily adapt itself to any changes of form in the disk *e* resulting from the compression thereof at the edge without likelihood of the formation of channels through which the gases within the bottle may escape.

My invention is particularly adapted to closures employing compressible disks embodying therein granular cork, as in this form of closure, there is greater likelihood of slight contamination of the liquid contents of a bottle and there is also greater likelihood of the separation of small granules of cork from the main body and the presence of such small granules in the liquid in the bottle. Furthermore, with a composition disk, the binding medium employed for attaching the disk *f* to the disk *e* will readily combine with the binding material for the disk itself and thus form a close intimate bond between the two disks.

The use of the disk *f* will also tend to prolong the effective life of the disk *e* by preventing the gases and liquid in a bottle contacting with any filling or surfacing medium which may be used upon the disk *e*.

I have referred herein to the fact that the disk *f* does not extend into the area of the contact surface of the disk *e*. By this I do not mean that the disk *f* must not contact with the neck of the bottle, but that it must be within that portion of the disk *e* which is subjected to the compression necessary to secure a tight sealing of the bottle. In applying a closure of this type to a bottle, a channel is formed in the disk *e* by the top of the bottle lip, the line of greatest compression being centrally of said channel. The disk *f* is so positioned as to be spaced within said line of greatest compression and yet it may be, and preferably is, in contact with the inner edge of the bottle lip; and thus forms a double seal, one between the disk *e* and the top of the lip of the bottle, and the other between the disk *f* and the inner edge of said lip.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent is:—

1. A bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

2. A bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a thin non-absorbent, non-porous paper disk superimposed upon, and united by means of a binding medium to, said compressible disk, said paper disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk, and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

3. A bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a fusible binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

4. A bottle closure embodying therein a metallic cap, a compressible disk composed of granular cork and a binding medium within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

5. A bottle closure embodying therein a metallic cap, a compressible disk composed of granular cork and a fusible binding medium within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a fusible binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

6. A bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a flexible disk of non-absorbent material superimposed upon, and united

by means of a binding medium with, said compressible disk, said superimposed disk being of smaller diameter than, and having its center coincident with the center of, said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

7. A bottle closure embodying therein a metallic cap, a compressible disk composed of granular cork, and a fusible binding medium within said cap, and a thin non-absorbent, non-porous paper disk superimposed upon, and united by means of a fusible binding medium to, said compressible disk, said paper disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk, and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

8. A bottle closure embodying therein a metallic cap, a compressible disk secured within said cap by means of a fusible binding medium, and a flexible disk of non-absorbent material superimposed upon, and united by means of a fusible binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

9. A bottle closure embodying therein a metallic cap, a compressible disk composed of granular cork, and a fusible binding medium secured within said cap by means of a fusible binding medium, and a thin non-absorbent, non-porous paper disk superimposed upon, and united by means of a fusible binding medium to, said compressible disk, said paper disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk, and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

In witness whereof I hereunto affix my signature in the presence of two subscribing witnesses, this 15th day of November, 1915.

CHARLES E. McMANUS.

Witnesses:

CLARICE FRANCK,

JUDITH PARDEE.

BLANK

PAGE

535 Feb. 28, 1933. A. H. WARTH 1,899,782

MATERIAL FOR FACING BOTTLE CAPS AND METHOD OF MAKING SAME

Filed Dec. 17, 1929

Fig. 1.

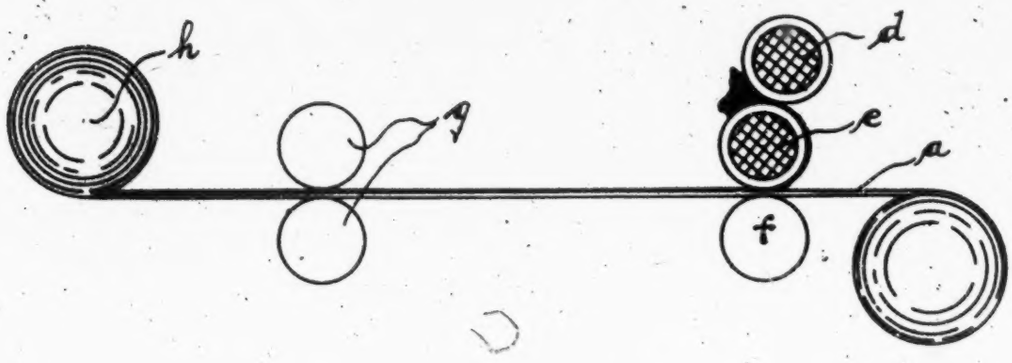


Fig. 2.

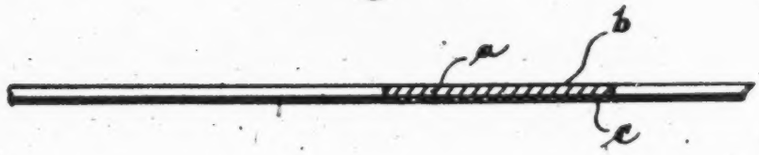




Fig. 3.

Alvin H. Warth

INVENTOR

BY Frank D. Wentworth

his ATTORNEY.

Patented Feb. 28, 1933

536

1,899,782

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

MATERIAL FOR FACING BOTTLE CAPS AND METHOD OF MAKING SAME

Application filed December 17, 1929. Serial No. 414,614.

My invention relates to material for facing bottle caps and method of making same, and more particularly to strip material having applied to one face thereof a coating of gutta-percha.

This application is a continuation-in-part of my copending application Serial No. 494,201, filed November 7, 1930, the latter being a division of my application Serial No. 159,743, filed January 7, 1927, and now Patent No. 1,788,260, granted January 6, 1931.

Heretofore, facing material for bottle caps has been secured in position within the caps by means of gutta-percha tissue. In forming the facing disks and applying them to the caps, the practice has been to cut disks from superimposed strips of facing material and gutta-percha tissue, deposit the disks in the cap and apply heat for the purpose of fusing the gutta-percha tissue. Such a method is illustrated and described in my copending application Serial No. 492,546, filed October 31, 1930, as a division of my copending application Serial No. 360,895, filed May 5, 1929. As will be understood, this method of procedure is utilized in the production of caps of the "center spot" type, i. e. which are provided with a facing or "center spot" of less diameter than the cap or cushion disc within the cap. It is to the production of material for the manufacture of caps of this "center spot", that the present invention more particularly relates, although in its broader aspects it is useful in the manufacture of caps having facings other than "center spots". A further illustration of a cap of the "center spot" type is to be found in the patent to McManus 1,339,066, granted May 4, 1920. One difficulty in thus applying such "center spots" or disks to caps has arisen from the use of superimposed unconnected strips of facing material and of gutta-percha, the two strips being simultaneously fed from the same roll in relation to the punch of the face applying machine. As will be understood, facings of the "center spot" type are applied within the formed cap to the cushion liner and this method of manufacture presents problems quite distinct from the manufacture of caps having facings coextensive with the cushion liner, since facings coextensive with the cushion liner are ordinarily produced by adhesively uniting superimposed facing material and cushion liner material, both in sheet form, thereafter simply punching laminated discs of facing material and cushion material from the laminated sheet.

With this condition, there is not only difficulty in feeding the strip, but in cutting the gutta-percha with a clean sharp edge so as to ensure the binding stratum of gutta-percha being co-extensive in area with the facing disk. The gutta-percha binding stratum in such disks is intended not only to act as a cement, but also as a non-absorbent, gas impervious medium for avoiding possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shell itself or a cushion disk of cork or composition cork.

Furthermore, when thus using superimposed strips of the facing material and of gutta-percha tissue, it was essential, during the application of the disk to the cap, to bond the gutta-percha to both the material of the cap and the facing material.

It is desirable, in the use of facing disks of the character above referred to, that the gutta-percha stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of paper and gutta-percha, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of gutta-percha, thus avoiding all necessity for assembling strips of facing material and of gutta-percha tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of gutta-percha is evenly distributed upon one face of a strip of facing material. The gutta-percha is not only firmly bonded to this material, but is forced into the surface grain thereof, and has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

The manner of applying the gutta-percha to the facing strip is such as to ensure substantial uniformity in the condition of the gutta-percha throughout the strip by reason of the fact that those impurities or imperfections resulting from the working of gutta-percha in a mill will develop only along the edges of the facing material, where they may either be removed by trimming wide strips of the material, or will come within the wastage of narrow strips when cutting disks from such strips.

Furthermore, gutta-percha tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the re-winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain as distinguished from its normal granular formation.

In applying the gutta-percha to the fibrous or metallic facing material in accordance with my invention, the thickness of the gutta-percha is determined solely by that required to secure the desired intermediate stratum of the gutta-percha in the finished cap.

In the application of heat, when bonding the facing material to the cap, when utilizing gutta-percha tissue, a tendency of the gutta-percha is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the gutta-percha tissue when fused, I have been unable to determine. In the strip of my invention, however, the gutta-percha is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

So far as the method of producing the strip is concerned, it is such that the effective distribution of the gutta-percha throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the gutta-percha surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine.

It is desired to note that the surface of the strip to which the gutta-percha is not applied is always a highly polished surface, whether it be a varnish fibrous material such as paper or a metal foil, so that the gutta-percha surface will not adhere thereto. By applying the gutta-percha directly to the surface of the paper and firmly bonding it there is a likelihood of difficulties arising as a result of the separation of the gutta-percha from the facing strip during the unwinding operation, either as a result of slight adherence, from suction or otherwise, such as frequently occurs when using the superimposed strips of the facing material and of gutta-percha tissue.

The invention consists primarily in material for facing bottle caps consisting of a facing strip of non-absorbent, gas impervious and acid resisting material, having bonded thereto, throughout one face thereof, a thin surfacing of gutta-percha; and in such other novel characteristics, and in the novel steps and practices of producing same, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawing,

Fig. 1 is a diagrammatic showing of the method of producing the facing material of the invention;

Fig. 2 is a longitudinal view, partly in cross section, of a fragmentary portion of said material; and

Fig. 3 is a face view thereof with a portion of the facing strip broken away.

Like letters refer to like parts throughout the several views.

In the accompanying drawing, the thickness dimensions are all greatly exaggerated, the thickness of the facing strip being less than five thousandths of an inch, and that of the gutta-percha surfacing, less than two thousandths of an inch.

In the embodiment of the invention shown in the drawing, the facing strip is composed of what is known as express paper which is a hard, tough paper having little absorptive properties. The properties inherent to the paper, however, are such, if properly finished, as to adapt it for use as facing material for bottle caps, although it is extremely difficult to satisfactorily cement such paper to the metal shell or cork cushion of such a closure.

In order to impart to one surface of the paper only the desired properties which will result in this strip presenting toward the contents of a bottle, a surface which is non-absorbent, gas impervious and acid resisting, I give a finish to this surface consisting of a coating of a varnish having the desired properties, and which includes therein resin

hina-wood oil, a drier and a plasticizer. his surface finish, in addition to having ie properties above described, will also be fficiently flexible to avoid the formation of racks, or impart to the paper strip as a hole, a degree of brittleness which might sult in the formation of such cracks or ams in the paper as would destroy the sur- ce finish and permit the contents of the bot- e to attack the body of the paper.

While express paper is a water finish pa- r, other similar papers may be used such sulfite paper or bleached kraft paper.

The varnish finish coating above referred is indicated at *b* in the drawing, this coat- g being very thin, merely sufficient to pro- de a continuous surface upon one side of e strip. The other side of the paper strip resents the normal finish of the paper, and as firmly bonded thereto a thin coating *c* f gutta-percha, covering the entire face of e strip and presenting a smooth continu- s surface, having a general granular char- ter resulting from the manner of applying me to the paper.

It is obvious that in the handling of the mpleted strip of facing material the gutta- rcha facing *c* will be incapable of stretch distortion because of its firm adherence to e non-elastic paper strip *a*. As compared ith gutta-percha tissue, the quantity of gut- -percha required to secure the desired nding action, when assembling the facing sk in a cap, is somewhat reduced.

In cutting disks from a strip of the ma- rial, there is no tendency toward mutila- n of the gutta-percha by reason of possible ag in the cutting die, and each disk, as de- ered from the die to within a cap, will esent a continuous uninterrupted gutta- rcha surface upon the disk, so as to en- re, by the subsequent application of heat d pressure, a bond between the disk and the p co-extensive in area with the disk. The ethod involved in utilizing my invention ed not be more fully described herein, since is more fully disclosed and covered in my ued Patent 1,788,260, granted January 6, 31.

Since, in applying the gutta-percha to the per, the condition are such as to completely all surface pores, it is obvious that during bonding action, in the facing machine re is no tendency of the gutta-percha, ring and after fusing, leaving exposed, nute openings at any point of the surface the paper.

By reason of the thinness of the gutta- rcha facing *c*, there is no tendency toward e expression of any of the gutta-percha en between the facing disk and the por- n of the cap to which it is applied.

The possibility of securing a clean cut by die for forming the disks, both as to the per and as to the gutta-percha facing *c*, ensures an effective bond entirely about the edge of the disk, presenting a continuous barrier of non-absorptive, gas impervious and acid resisting material at the space between the disk and the cap which will effectively prevent the seepage of gas or fluids in a bottle between the disk and the portion of the cap to which it is applied.

In Fig. 1 of the drawing, I have illustrated the method of making the strip material of my invention. In the practice of this method, I use an ordinary mill with its heated rollers *d* and *e*. Operative in relation to the lower roller *e* is a backing roller *f*. A strip of the paper or other material *a* is drawn between the rollers *e* and *f* by means of the feed rollers *g*, by which it is passed to a re-wind mechanism indicated at *h*.

The method contemplates the feeding of the strip *a* between a backing roller *f*, and between one of the heated rolls of a gutta-percha mill *e*, thus applying a thin coating of gutta-percha while hot, to one surface only of the paper strip *a*, the gutta-percha hardening from its exposure to the surrounding temperature before engagement by the feed rollers *g*.

In feeding the strip *a* in the manner above described, the varnish surface thereof is presented downwardly, this surface having been applied to the paper prior to the feeding of the strip in the mill. In this manner a very thin coating of gutta-percha may be applied to one face of the strip *a*, to which it will firmly adhere while said strip is passing between the rollers *e* and *f*.

The thickness of the surface coating may be controlled by adjustment of the rollers *d* and *e*, and also by adjustment of the roller *f* in relation to the latter. In this manner, the strip *a* will have applied thereto a surfacing of gutta-percha which will be evenly distributed throughout the entire surface of the strip, and will present a substantially smooth exterior surface, notwithstanding surface irregularities in the paper itself. The smooth polished surface *c* will avoid any possibility of a surface stratum *c* adhering to the adjoining stratum *b* after the strip is re-wound and while it is being unwound in the disk applying machine, since the gutta-percha will not become tacky under normal factory temperatures.

It is preferable to apply the gutta-percha in the manner above described, to wide strips of paper which are cut into narrower strips of the desired width for use with bottle caps of different diameters.

The method described has been found to be applicable to the coating of paper strips with gutta-percha, and it is also applicable to coat metal foil, but in coating foil it is desirable to previously prepare, as by the application of a coating, one surface of the foil to receive the gutta-percha and permit it to adhere

Page Tightly Bound

539

thereto with sufficient strength to permit a continuing application of gutta-percha to a strip as required by the method of my invention.

Facing material embodying the invention possesses the advantages that a substantially uniform and complete distribution of the gutta-percha throughout each disk cut from a strip, is assured. The additional labor of associating a strip of gutta-percha tissue and a strip of facing material is avoided, and higher speeds may be attained in the facing disk applying machine. By the method of applying fused gutta-percha to a facing strip, there is considerable saving, not only by the reduction in the amount of gutta-percha required, as compared with the use of gutta-percha tissue, but the preparation of the strips for use in the disk applying machines is very much reduced, and a more uniform quality in the bond between the disks and the caps is also assured.

It is preferable for the bottling of many liquids to employ facing material composed of paper of the general character herein described, as compared with the use of metal foils.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. As a new article of manufacture, material for facing bottle caps consisting of a paper strip, having applied to one surface thereof a surface coating of varnish consisting of resin, China-wood oil, a drier and a plasticizer, whereby said surface of the paper is made non-absorbent, gas impervious and acid resisting, and having bonded thereto, throughout the other surface thereof, a thin surfacing of gutta-percha.

2. As a new article of manufacture, bottle cap liner material in strip form comprising paper having a high gloss and having a coating of varnish on one surface of the paper and bonded to the other surface thereof a coating of gutta percha.

3. As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof.

4. As a new article of manufacture, bottle cap spotting material in strip form comprising express paper having a coating of varnish on one surface and bonded to the other surface thereof a coating of gutta percha.

5. As a new article of manufacture, bottle cap spotting material in strip form comprising bleached kraft paper having a coating of varnish on one surface and bonded to the other surface thereof a coating of gutta percha.

6. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of heat fusible, waterproof and flexible adhesive.

7. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of gutta percha.

8. As a new article of manufacture, highly flexible material in sheet or strip form adapted for the spotting of cushion discs of crown caps with center spots of less diameter than the disc diameter by the mere application of heat and pressure consisting of a continuous layer of material selected from a group consisting of metallic foil and varnish coated tough paper having relatively low absorptive properties, said layer being coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially nontacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

9. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

In witness whereof I have hereunto set my signature, this 11th day of December, 1929.

ALBIN H. WARTE

Page Tightly Bound

BLANK

PAGE

540

Feb. 28, 1933. A. H. WARTH 1,899,783

BOTTLE CAP AND METHOD OF MANUFACTURING SAME

Original Filed May 5, 1929

Fig. 1.

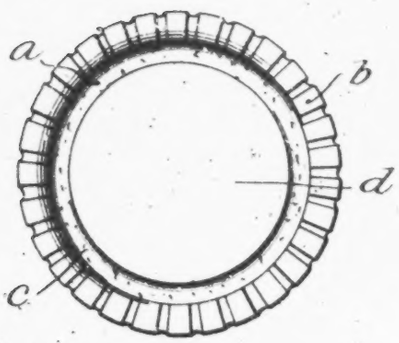


Fig. 2.

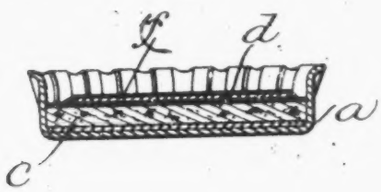


Fig. 4.

Fig. 3.

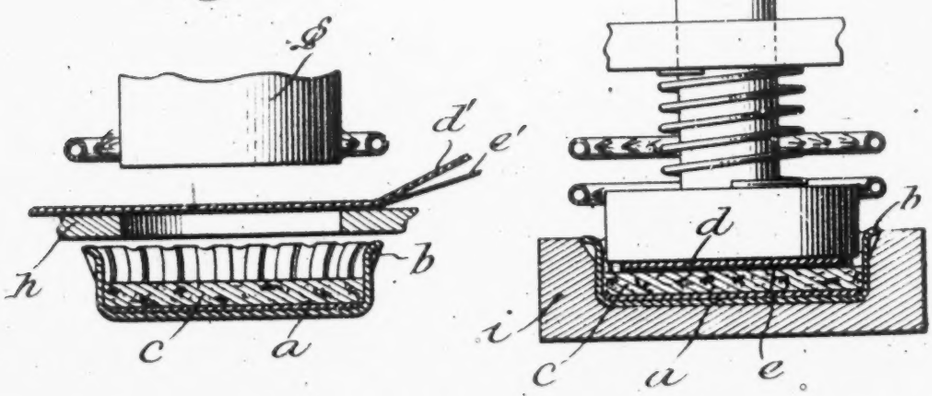
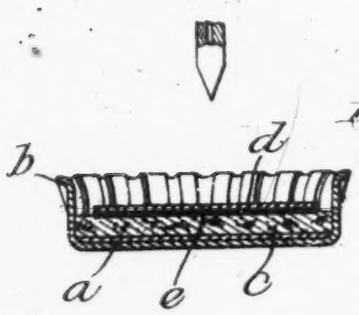


Fig. 5.



Inventor

Albin H. Warth.

By Cushman Bryant & Darby

Attorneys

Patented Feb. 28, 1933

1,899,783

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, INC., OF BALTIMORE, MARYLAND, A CORPORATION OF NEW YORK

BOTTLE CAP AND METHOD OF MANUFACTURING SAME

Original application filed May 5, 1929, Serial No. 360,895. Divided and this application filed October 31, 1930. Serial No. 492,543.

My invention relates to bottle caps and the method of making same, and more particularly to a cap consisting of a metallic shell containing a cushion disk having what is known as a protecting center disk, and to the method of applying this center disk.

Bottle caps of the type to which my invention relates have heretofore been extensively used for sealing bottles containing mineral waters and other fluids having a deleterious action upon the cushion disk within the cap, particularly when this disk is made of composition cork. Ordinarily the facing center disk has been made of tin foil cemented or otherwise attached directly to the cushion disk, or secured thereto by means of a fibrous backing having applied thereto a dry adhesive made tacky by means of a thin film of moisture applied to the cushion disk.

It has been attempted to secure the facing disk upon the cushion disk by means of a liquid cement, but this has proven impracticable because, in order to secure a satisfactory bond, it was necessary to apply the adhesive in quantity having such thickness that, upon the application of pressure to secure the desired intimate relation between the facing disk and the cushion disk, there was a tendency of the disk to slide into an eccentric position in relation to the disk. In order to permit the effective sealing of a bottle with a cap having a tin center or other protective facing, it is essential that the facing disk be accurately centered in relation to the cushion disk so as to avoid any possibility of the neck of the bottle sealing against the facing disk, since this would result in the presence of minute channels or voids at the point of contact of the facing disk with the neck of the bottle. Furthermore, at the points where the line of contact crossed the periphery of the disk, there would be exposure of a small area of the cushion disk to the contents of the bottle.

With the above conditions in mind, the object of my present invention is to provide a bottle cap having a protecting center disk secured in position by a fusible medium devoid of moisture, and thus avoid any possibility of slippage of the disk while pressing it into the necessary intimate relation with the cushion disk.

The medium used for securing the facing disk in place is of itself water insoluble and acid resisting and, being fusible at low temperatures, will form a very thin coating between the facing disk and the cork so as to preclude the possibility, in the event of imperfections in the facing disk, of the cork being attacked by the fluid contents of a bottle. A medium which is itself elastic or resilient, such as gutta percha, is preferred, since the same will provide an elastic cushion for the fibrous disk and thereby minimize the danger of rupturing the latter.

The cementing medium may be readily handled, is not affected by ordinary changes of temperature or atmospheric conditions, may be readily cut to size simultaneously with the cutting of the facing disk so as to secure a bonding stratum co-extensive with the area of the facing disk, and may be quickly fused to secure the desired bonding action between the facing disk and the cushion disk.

In addition to the foregoing characteristics, I am enabled to effectively use a facing disk of fibrous material, since the nature of the bonding medium is such as to firmly adhere to hard finished papers as well as to natural cork or composition cork.

In the commercial production of such caps, it is essential that the facing disk, during production, be cut from a strip of material, and since the edges of the disk cannot be protected by the same material used for waterproofing the surface of the disk, I have found it desirable, after the application of the facing disk, to apply, to the entire surface of the cap exposed interiorly of the cap, a very thin protecting surfacing of water repellent material. This not only serves to prevent adherence of the cork to the neck of the bottle, and to exclude atmospheric air from the exposed portions of the cushion disk before the cap has been applied to a bottle so as to prevent darkening of the cork by oxidation, but will at the same time, protect the perimeter of the center facing disk to an extent to minimize likelihood of the absorption of moisture at the edge of the disk.

Page Tightly Bound

Bottle caps of the general type of which my invention relates must be produced at a very low cost, and the various materials entering into same and the method of assembling and finishing are matters of great desideratum.

The herein described method of making the bottle cap of my invention relates merely to the manner of applying the center facing disk and finishing the cap, it being understood that the assembling of the metal shell and the mounting of the cushion disk therein are entirely independent operations, preparatory to the practicing of the method of my present invention.

The invention consists primarily in a bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellent, gas impervious fibrous material, such as a relatively hard, high-gloss or water-finish paper provided with a coating of resistant varnish, said disk being of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of a water insoluble, fusible, cementitious material, such as gutta percha co-extensive in area with said facing disk, between said facing disk and said cushion disk; and in such other novel characteristics as are hereinafter set forth and described, and to the method of making said caps, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawing:

Figure 1 is a bottom plan view upon an enlarged scale of a bottle cap embodying the invention.

Figure 2 is a section on the line 2—2 of Fig. 1.

Figure 3 is a vertical section illustrating the first stage of applying the center disk to the cushion disk.

Figure 4 is a similar view illustrating the final stage; and

Figure 5 is a view illustrating a stage intermediate those illustrated in Figs. 1 and 2, used when it is desired to apply a wax finish to the cushion disk.

Like letters refer to like parts throughout the several views.

In the accompanying drawing, notwithstanding that the caps themselves are shown upon an enlarged scale, the dimensions of the facing disk and the intermediate bonding stratum are of greatly increased thickness as compared with the actual materials used, even when compared with the enlarged scale of the other parts of the cap.

A bottle cap embodying the invention consists of the usual metallic shell *a* having a fluted skirt *b*. Secured within this shell is a cushion disk *c*, which may be either of natural, or of composition, cork. Composition cork is more extensively used than natural cork, and the employment of a tin or other center facing disk is particularly desirable with composition cork cushion disks, since the contents of a bottle will more readily attack the binder of the composition cork than it will natural cork.

It is essential, to secure a reliable seal, particularly with carbonated beverages, that the neck of the bottle seal directly against the cushion disk, and not against the center facing disk. This is generally understood, and I follow, in the bottle cap of my present invention, the old practice of using a cent[er] facing disk *d*, the diameter of which is relatively less than that of the cushion disk, so that when the cap is applied to a bottle, the lip of the bottle will be positioned between the facing disk and the skirt *b*, the contacting area being such as to bring the facing disk to a point at the inner edge of such contacting area.

While heretofore tin centers have been extensively used, it has been found impracticable to use paper disks for this purpose, because in order to make them impervious to gas, and non-absorbent, the finish of the paper had to be such as prevented the formation of a sufficiently good bond between the facing disk and the cushion disk to permit the practical commercial production of such caps.

To correct this condition, it has long been the practice to bond a metal foil, such as tin or aluminum, to a fibrous backing, to which latter the cement would firmly anchor. With this construction of the facing disk it was the practice to apply a dry adhesive to the fibrous backing strip and to make this adhesive tacky by the application of moisture to the cushion disk immediately prior to the coating of the facing strip and the application of the disk cut therefrom to the cushion disk.

While caps, having a facing disk of the character immediately above described, have been extensively used, their production cost, as compared with the required low cost of such caps, has been very high.

Aside from the expense of caps provided with foil spots, their use has been extremely limited, due to the fact that foil is not sufficiently resistant to acids and alkalies.

I am aware that it has heretofore been proposed to provide a cap with a center spot of paper, and that this is broadly covered in the United States patent to McManus, No. 1,339,066, granted May 4, 1920. The present invention constitutes an improvement upon the subject matter of said patent.

The use of center spots of paper on a commercial scale has not heretofore been economically practicable for several reasons. First, paper has a tendency to absorb liquids and gases and to impart a taste to and discolor many beverages. Moreover, upon absorption of moisture, the paper tends to rupture and expose the cushion material whi[ch]

it overlies. Again, the difficulty of applying a center spot of paper to the cushion disk presents problems altogether different from the use of a facing disk coextensive with the cushion disk, as for example the facing disclosed in my Patent No. 1,656,614, granted June 17, 1928. A facing which completely covers the cushion disk may be readily united adhesively to the sheet or blank from which the cushion disk is stamped, or in other words, the facing sheet and cushion sheet are united adhesively, and the laminated disks punched therefrom. But in applying a formed center spot, as distinguished from a sheet, due to the fact that it is necessary to absorb the moisture in the adhesive, and as heretofore explained, during the period of moisture evaporation the spot tends to become displaced. This has presented a problem in large scale production, which manufacturers have not heretofore overcome.

Furthermore, due to the moisture and gas absorbent properties of paper, the exposed edge of the paper spot is of an area which cannot be protected by a facing, such as foil or varnish, since the spot is punched from sheets. This objection I have overcome by using a combination consisting of paper of the character described and a liquid and gas resistant fusible adhesive.

I have found that by using a paper of the character herein described, namely, a tough paper having a hard or high-gloss finish, for example, such as is termed a water-finish, the same will not fracture, has an inherent resistance to liquids and gases and serves as an excellent carrier for an exposed or outer facing of varnish and for a backing layer of water-insoluble, heat-fusible and acid and gas-resistant adhesive. I prefer an adhesive having these characteristics and which is also elastic so as to provide an elastic or cushion backing for the varnish layer and the rupturable paper layer.

Extensive commercial use of this new cap has established that it is resistant to acids and alkalies and, therefore, useful in connection with liquids with which a foil spot cannot be employed, and that it is at the same time substantially less expensive than a foil spot cap. Moreover, it does not present the mechanical difficulties which are present in applying a foil center spot. The hard, tough paper serves as an excellent carrier for the varnish film as well as for the gutta percha and insures coextensive varnish and gutta percha films. The gutta percha serves not only as a medium for uniting the paper and varnish films to the cushion layer, but constitutes an acid and gas-resistant, water-insoluble, backing layer, thereby preventing moisture, acids or gases which penetrate the varnish film or paper from attacking the cushion layer. Moreover, the use of a hard paper having a water-finish or high-gloss permits the use of even films of varnish and gutta percha, since the paper does not absorb either the fused gutta percha or the varnish to any appreciable extent. Consequently, it is unnecessary to employ more varnish or thicker gutta percha than is required to cover completely the surfaces of the paper.

In the cap of my invention, the center disk *d* is composed of a glazed hard paper, such as is generally known as express paper, sulphite paper or bleached kraft paper having a water-finish, i. e., high-gloss finish. Such papers are, of themselves, independently of the finish, fairly non-absorbent, and when required for pasting purposes, are usually provided with a dry gummed surface. The process of producing such gummed paper results in a curl in the paper.

While such hard tough papers are extremely desirable because of their inherent non-absorbent, gas impervious qualities, their use in bottle caps of the type to which my invention relates was impracticable, prior to my invention, because of the difficulties of feeding and cutting previously gummed paper and of cementing same to the cushion disk.

In the cap of my invention, however, to obviate these difficulties, I use ungummed paper of the type above referred to, and secure it to the cushion disk by means of a disk of what is known as gutta-percha tissue, which material, in strip form, may readily be handled in a machine and collated with a facing disk paper strip so as to permit a disk of the paper and a disk of the gutta-percha to be simultaneously cut by the same dies. This not only simplifies the production of the cap, but results in a bonding stratum *e* between the facing disk and the cushion disk co-extensive in area with the facing disk itself. The strip of paper from which the disk *d* is cut is indicated at *d'*, while the strip of gutta-percha forming the stratum *e* is indicated at *e'*.

Gutta-percha is particularly desirable as a bonding medium, not only because it ensures the distribution of the bonding stratum throughout the entire area of the facing disk, but because it will readily adhere, when softened to the desired extent, to the cork or composition cork, and to hard paper. Furthermore, it possesses the qualities of being non-absorbent and non-impervious to gases. The tissue itself is very thin, about a thousandth of an inch, and when softened, instantly adheres to the cork and to the paper, and is not subject to side sliding or slippage, such as liquid cements. The gutta-percha is not affected by fruit acids, minerals, CO_2 or other ingredients present in the fluid contents of bottles with which such caps are designed to be used.

The gutta-percha may be fused or melted at temperatures sufficiently low to avoid in-

jury to the other previously assembled portions of the cap, and will return to its former solid form at normal temperatures with considerable rapidity.

In the finished cap, particularly when such caps are desired for use with spring water or mineral waters, it is desirable, after the application of the center disk, to apply a very thin superficial coating *f* of water repellent material, such as paraffin, ceresin or other waxes, throughout the exposed faces of the cushion and center disk. This coating serves to prevent adherence of the cushion disk to the neck of the bottle, due to the action of the water upon the cork or upon the binder of composition cork, and also serves to more or less effectively seal the raw edges of the paper of the center disk, and prevent possibility of the softening of the paper and its ultimate disintegration as a result of a slow absorption of moisture through such raw edges.

A cap embodying the invention lends itself to rapid production methods, which will now be described.

Preparatory to the application of the center disk *d* to the cushion disk *c*, the latter is completely assembled in relation to the shell *a*. The caps, completely assembled, may be rapidly fed in relation to cutting dies *g* and *h*, and as they are brought under these dies, superimposed strips *d'* of paper, and *e'* of gutta percha tissue are fed between the die plate *h* and the punch *g*. With the descent of the punch *g*, disks are simultaneously cut from the strip *d'* and *e'*, such disks being pressed by the punch upon the disk *d* with their centers concentric with each other and with said disk *d*. The punch *g* is maintained at an elevated temperature required to melt the gutta-percha of the strip *e'* and make it tacky, so that substantially simultaneously with the pressing of the disks *d* and *e* against the disk *c*, the disks *d* and *e* will be bonded together with sufficient permanency to ensure accurate positioning of the disk *e* and avoid likelihood of displacement of same thereafter. It is preferable, after the disk *e* has thus been bonded to the disk *d*, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta-percha and a close adhesion of every portion of the disk *e* to the disk *d*.

For this purpose I have shown a carrier *i* and a heated spring pressed plunger *j*.

In the drawing, I have shown the punch *g* and the plunger *j* as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed.

It will be noted that by following the methods above specified, the heat necessary for the fusing of the gutta-percha is applied at the surface of the disk *d*, and that the time intervals are sufficiently short to avoid any substantial absorption of heat by the cushion disk *c*. The very thin gutta-percha tissue will melt very rapidly, and after the removal of the punch *g* or plunger *j* will solidify with great rapidity and form a substantially imperceptible stratum intermediate the discs *c* and *d*.

If it is desired to provide the cap with a superficial wax surfacing throughout the area of the cushion disk *c* and center disk *d*, a very small quantity of wax, such as paraffin or ceresin wax or wax compounds, may be delivered upon said disks within the shell *a* following the application of the disk *d* to the disc *c*, and prior to the application of heat and pressure through the medium of the carrier *i* and plunger *j*. Such heat and pressure will spread a drop of wax in a very thin film about the entire exposed face of the two disks, the raw edge of the disk *d* also being coated with this wax.

This thickness of the disc *d* will be approximately five-thousandths of an inch, while the thickness of the binding stratum *e*, in the ultimate product, will be relatively less than the thickness of the gutta-percha tissue, or a mere fraction of a thousandth of an inch. The wax surface stratum will also be but a mere fraction of a thousandth of an inch, and is not perceptible to the eye, although sensible to the touch.

The glazed face of the disk *d* does not require a wax surfacing, and, so far as I have been able to determine, most of the wax is expressed from this surface and forced from the disk to the exposed area of the cushion disk *c*.

If it is desired to provide the cap with a wax surface as described, it is essential that this surface be applied after the center disk *d* has been assembled in the cap, since the presence of wax upon the surface of the cushion disk *c*, prior to the application of the disk *d*, would prevent a proper bonding of this disk *d* to the cushion disk *c*.

The glazed surface upon the strip *d'* consists of a waterproof compound consisting of resin, China-wood oil and a drier, and containing a plasticizer.

Express paper which has a high-gloss or water-finish, sulphite paper and bleached kraft paper are all well known commercial products.

This application is a division of my copending application Serial No. 360,895, filed May 5, 1929.

It is not my intention to limit the invention to the precise details herein described, it being apparent that such may be varied without departing from the spirit and scope of the invention.

I claim:

1. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer

urface, said disk being of smaller diameter han and concentric with said cushion disk, nd a stratum of heat-fusible, acid-resistant nd water insoluble adhesive material co-xtensive in area with the facing disk between he latter and the cushion disk and uniting he two disks.

2. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

3. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

4. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high-gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

5. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of express paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

6. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of water-finish bleached kraft paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

In testimony whereof I have hereunto set my hand.

ALBIN H. WARTH.

547 March 20, 1934. A. H. WARTH Re. 19,117

PROCESS OF PRODUCING CLOSURES

Original Filed Jan. 7, 1927

Fig. 1.

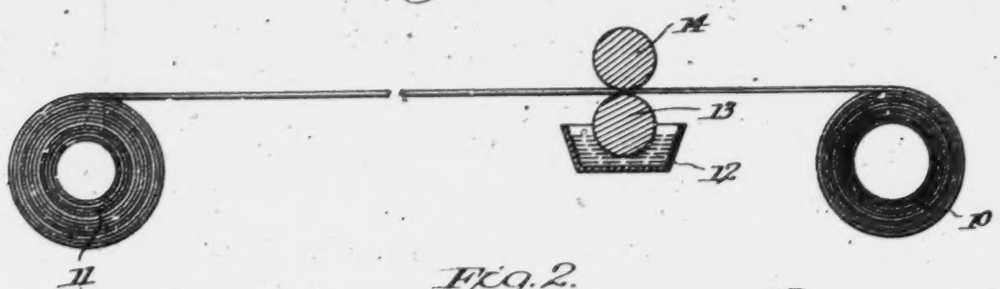


Fig. 2.

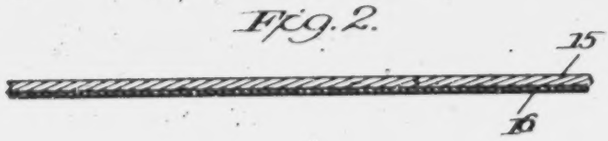


Fig. 3.

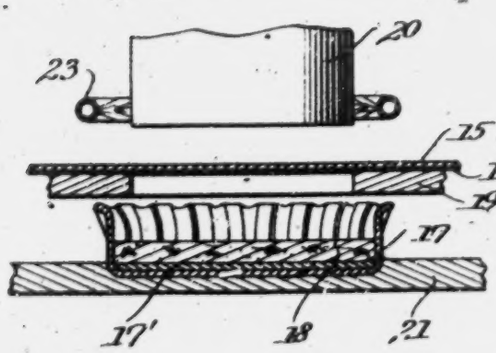


Fig. 4.

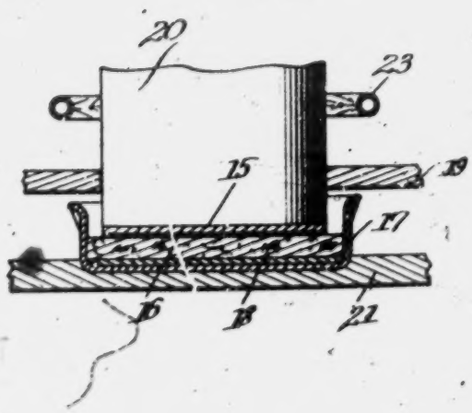


Fig. 5.

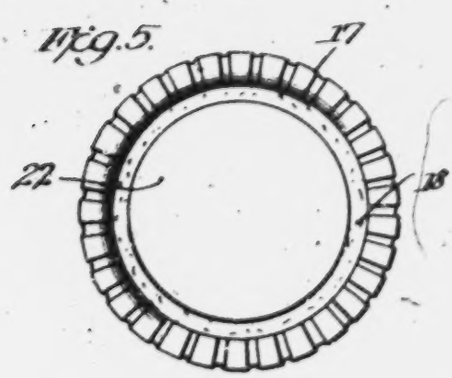


Fig. 6.



Inventor

Albin H. Warth.

By Cushman Bryant & Doyle

Attorneys

Reissued Mar. 20, 1934

Re. 19,117

UNITED STATES PATENT OFFICE

19,117

PROCESS OF PRODUCING CLOSURES

Albin H. Warth, Baltimore, Md., assignor, by mesne assignments, to Crown Cork & Seal Company, Inc., New York, N. Y., a corporation of New York

Original No. 1,788,260, dated January 6, 1931, Serial No. 159,743, January 7, 1927. Application for reissue January 23, 1934. Serial No. 707,995

4 Claims. (Cl. 113—80)

This invention relates to a method of producing closures of the type in which a sealing disc has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disc usually made of cork. For some uses, the sealing discs are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork discs and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disc and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork discs by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shell itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing discs of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disc, and particularly that it be uninterrupted about the edge of this disc, since at this point the disc should be firmly bonded so as to effectively seal the joint about the edge of the facing disc. When cutting and applying the discs of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disc cut from the strip and the material of the cap to which such disc is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a

mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disc applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing discs and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of dammar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The dammar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disc which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300° F. maintained for about 3 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing discs. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disc, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawing, there is shown a suitable mechanism for coating the strip and for cutting discs therefrom and adhesive

iting the disc to caps at the time of the assembly the discs with the caps. In the drawing,

Figure 1 is a diagrammatical view showing the ting of the strip.

Figure 2 is a longitudinal sectional view of a ment of the strip.

gure 3 is a side elevational view partly in sec- showing one step in the assembly operation.

ure 4 is a view similar to Figure 3 showing pot as it is cut and adhesively united to the t the time of assembly.

Figure 5 is an interior face view of the com- eted cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disc it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion ma-

terial, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

4. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

ALBIN H. WARTH.

BLANK

PAGE

552

July 17, 1934. A. H. WARTH 1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Original Filed Nov. 7, 1930 2 Sheets-Sheet 1

Fig. 1.

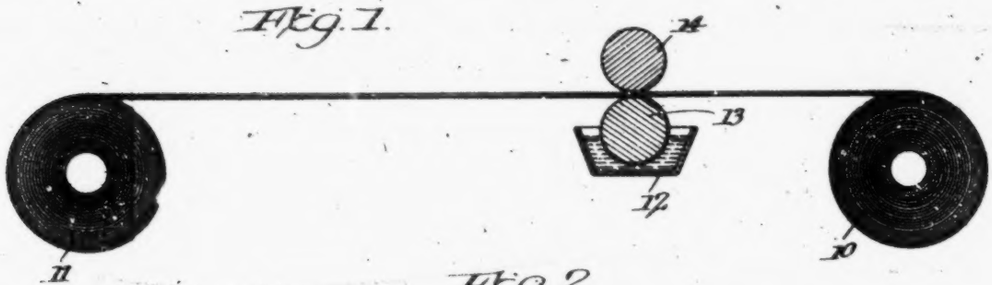


Fig. 2.

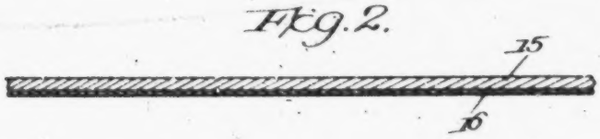


Fig. 3.

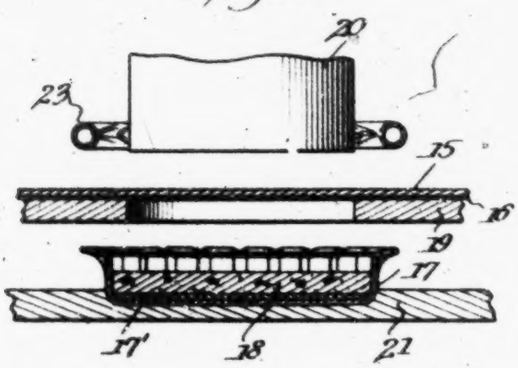


Fig. 4.

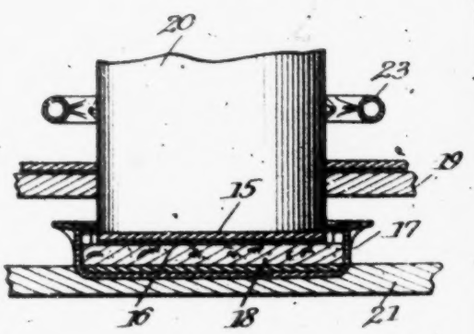


Fig. 5.

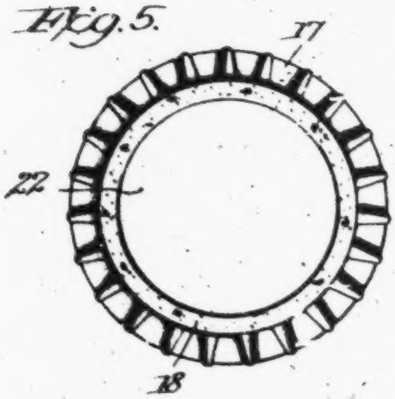
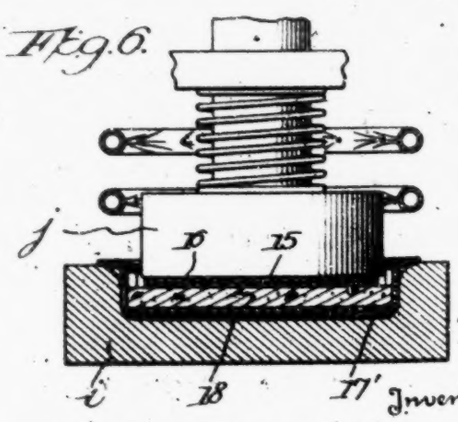


Fig. 6.



Inventor

Albin H. Warth.

By Cushman Darby & Cushman

Attorneys

BLANK

PAGE

553

July 17, 1934. A. H. WARTH 1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Original Filed Nov. 7, 1930 2 Sheets-Sheet 2

Fig. 7

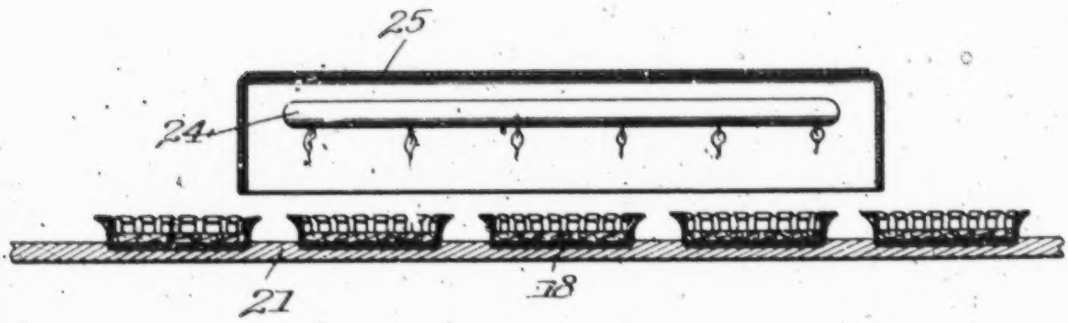
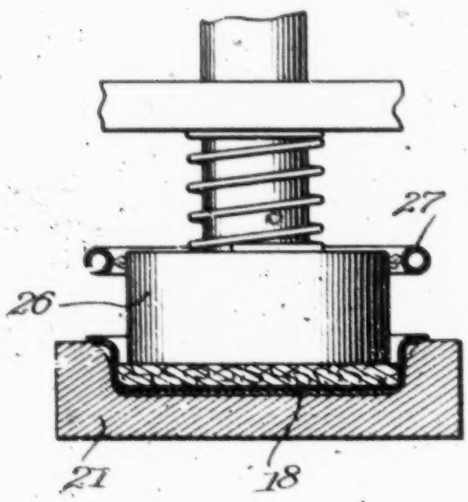


Fig. 8



Inventor

Albin H. Warth.

By Cushman Darby & Cushman

Attorneys

Patented July 17, 1934

1,967,195

UNITED STATES PATENT OFFICE

1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Albin H. Warth, Baltimore, Md., assignor to Crown Cork & Seal Company, Inc., Baltimore, Md., a corporation of New York

Original application November 7, 1930, Serial No. 494,201, which in turn is a division of Serial No. 159,743, January 7, 1927, now Patent No. 1,788,260, dated January 6, 1931. Divided and this application April 4, 1933, Serial No. 664,410

3 Claims. (Cl. 113—80)

This invention relates to a method of producing closures of the type in which a sealing disk has a facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

This application is a division of my copending application, Serial No. 494,201, filed November 7, 1930, and the latter is a division of my application, Serial No. 159,743, filed January 7, 1927, now Patent No. 1,788,260, granted January 6, 1931.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk or pad usually made of cork. For some uses, the sealing disks or pads are given a facing, e. g., tin foil, or aluminum foil, these materials or other materials of protective character being suitable to provide a non-absorbent, gas impervious, and acid resistant facing. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as "center spot crowns".

A commercially practicable method for manufacturing center spot crowns must ensure a high speed of production and accurate positioning of the center spot. An object of the present invention is to provide a method which will permit production at the rate of from 400 to 600 per minute, i. e., application of the center spots to the sealing pads at such a rate. A further object is to ensure accurate positioning or centering of the facing or spot while maintaining this high speed.

These center spot crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the tin foil spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method, the spots are secured by an underlying and separately formed and deposited tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying disks made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a water-proof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shelf itself or a cushion disk of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disk forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint above the edge of the facing disk. When cutting and applying the disk of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for

Page Tightly Bound

assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots may be rapidly and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

Another object of the invention is to provide a method in which the sealing discs or "spots" when punched from the strip and delivered to the cushion pad will be stuck in position instantly or as soon as deposited whereby during subsequent operations they will not move from the accurately centered position in which they are placed by the punch and die mechanism. This is preferably accomplished by preheating the sealing pad or cushion sufficiently to cause the thermoplastic coating on the disc to fuse sufficiently when it engages the pad to adhere instantly to the sealing pad.

With these general objects in view, the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice, the adhesive substance is such that it can be applied cold, i. e., at room temperatures, and is insoluble in cold water. While various materials may be used, I have found a suitable adhesive in a solution of dammar resin and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil, such as soya bean or China-wood oil. The dammar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. Another example of a suitable gum type of adhesive is gutta percha or a gutta percha containing compound which have characteristics similar to the composition previously described. Among such characteristics are substantially non-tackiness or adherence at room temperature a high degree of flexibility, insolubility in and imperviousness to moisture or water, acid resistance and heat fusibility, i. e., adapted to be brought to a tacky state by the mere application of heat and without the use of moisture. Such an adhesive is specified in my copending application, Serial No. 414,614, filed December 17, 1929, now Patent No. 1,899,782, granted Febru. 28, 1933.

An adhesive of this character provides a highly flexible adhesive layer continuously united with the facing material. Moreover, such an adhesive is highly resistant to the acids and alkalies ordinarily present in liquids which are to be capped. This is highly important in the manufacture of spot caps, since the liquids attack the adhesive around the edge of the spot. An adhesive of this character, which is not only waterproof, but resistant to acids and alkalies as well, maintains a firm adherent union of the facing or spot material with the cork disk. Due to its flexible character, it will not crack, and, therefore, it constitutes a flexible backing for the spot material.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid or plastic form to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the material, it is dried. While this may be effected by air drying at room temperatures, it is more rapidly accomplished at a temperature of about 300° F. maintained for about three minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body, which facilitates feeding and cutting.

Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strip of adhesive tissue and facing material where any stretch or distortion of the ad-

re stratum results in a defective cap and when stretch is extreme, tearing of the adhesive e makes necessary the stoppage of the cap ine until the strip can be repaired.

ter the coating is dry, the metal foil spots are abled, coated side down, with the sealing In case the metal foil is fed in a strip, may be cut out and deposited on the sealing as above set forth.

the time of assembly the coating material is d by heat to render it adhesive and the as- d unit is subjected to pressure. In carry- the invention according to what is now ered the best practice, the coating will be ned by heat after the spot is applied. This be accomplished in any suitable manner, for mple by a heated plunger or a plunger and ted table such as illustrated in Figure 6 of the ompanying drawings. The heat softens the ting and renders it adhesive and the pressure es to unite the spot to the cork. I also prefer reheat the cushion disc or pad in the metal l so that, as soon as the spot is applied, the rmoplastic adhesive thereon will be fused or ened and thereby cause the spot to be fixed he accurately centered position in which it is osited and held against dislodgment during subsequent steps and passage through the ap- atus. In cutting disks from this improved inated strip having an adhesive stratum bond- hereto, there is no tendency toward mutilation the adhesive layer by reason of possible drag the cutting dies, and each disc, as delivered m the die to within a cap, will present a con- uous uninterrupted adhesive surface upon the so as to insure, by the subsequent application heat and pressure, a bond between the disk the cap cushion layer coextensive in area h the disk.

his possibility of securing a clean cut by the s for forming the disks, both as to the non- orptive and gas impervious, and as to the ad- ive stratum, insures an effective bond entirely ut the edge of the spot or disc, thereby pre- ting a continuous barrier of non-absorptive gas impervious material at the space between disk and the cap which will effectively pre- t the seepage of gas or fluid in a bottle between disk and the portion of the cap to which it is lied.

Referring to the accompanying drawings, there hown suitable mechanism for coating the strip for cutting disks therefrom and adhesively ting the disk to caps at the time of the embly of the disks with the caps. In the wings,

Figure 1 is a diagrammatical view showing the ting of the strip.

Figure 2 is a longitudinal sectional view of a gment of the strip.

Figure 3 is a side elevational view partly in sec- n showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing spot as it is cut and adhesively united to the at the time of assembly.

Figure 5 is an interior face view of the com- ted cap.

Figure 6 is a cross-sectional view of the cap wn in Figure 5 showing the use of additional ssure means which may be utilized following action of the punch as illustrated in Figures nd 4.

Figure 7 illustrates a suitable means for apply- heat to the sealing pads or disks for pre- ating the assembled crowns which are fed to the punch whereby to effect adhesion of the center spot as soon as it is deposited, and

Figure 8 is a view illustrating another mechanism suitable for preheating.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil, having on one surface the coating 16 of adhesive, which is preferably of the thermoplastic character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e., non-tacky, at room temperature, so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disk will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disk and adhesively uniting it to the cork insert at the time the disk is punched from the strip.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disk and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marsa, No. 1,603,786, granted October 19, 1926. The caps, with the cushion disks or pads inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disk is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disk upon the cushion layer 18. As hereinafter described, the method contemplates a preheating of the assem-

Page Tightly Bound

bled crown, i. e., the metal shell with a sealing pad therein, before the spot is deposited so that the spot will adhere to the pad as soon as it is deposited.

The punch 20 may, if desired, be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disk is assembled with the cap, the heat and pressure will cause the disk to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disk thereafter.

As hereinbefore stated, after the spot is positioned on the sealing pad heat and pressure may be applied, as by a plunger or a plunger and heated table. In Figure 6 there is shown for this purpose a carrier *i* and a spring-pressed plunger *j*. The plunger *j* is heated by gas jets, and thus the plunger serves as means for applying a continuing heat and pressure after the punching operation to ensure complete fusion of the adhesive and a close adhesion of every portion of the disk 15 to the disk 18.

It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown i. e., metal shell with the sealing pad or disk therein, to soften the coating as soon as the metal foil spot is deposited. The coating thus becomes tacky enough, as soon as deposited on the sealing pad, to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus. In Figure 7, there is illustrated a suitable means for preheating the sealing pads to ensure adherence of the spot as soon as deposited. A burner 24 is positioned over the conveyor 21 and spaced sufficiently therefrom to apply to the pads heat sufficient to cause the spots to adhere to the latter as soon as deposited. This burner may be disposed within a hood 25 which confines the heat and tends to direct the same against the pads. As will be understood, it is sufficiently elongated to create sufficient heat for the purpose desired. This heater may be positioned immediately in advance of the punch 20 so that heat is not appreciably dissipated or lost before the punching operation. In Figure 8 there is illustrated another mechanism which may be used for preheating. A plunger 26 maintained at an elevated temperature, as by a gas burner 27, when positioned immediately in advance of the punch may be utilized to raise the temperature of the pads sufficiently to cause the spot to adhere to the pads as soon as deposited thereon.

The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger such as illustrated in Figure 6, but which would not, of course, be heated. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use, owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk, it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disk. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

I claim:

1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

ALBIN H. WARTH.

BLANK

PAGE

558

April 24, 1934. A. H. WARTH 1,956,481

SPOT CROWN AND LINER MATERIAL THEREFOR

Filed June 16, 1933

Fig. 1.

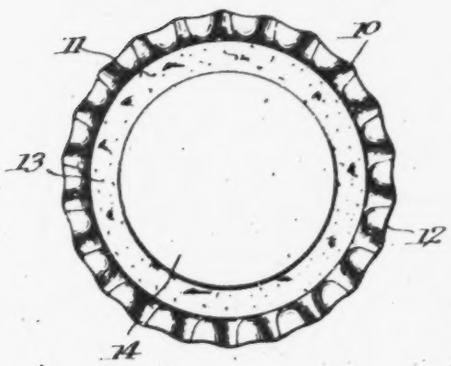


Fig. 2.

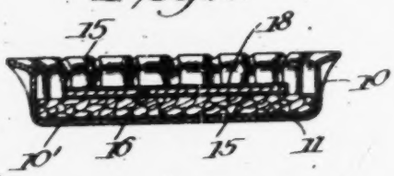


Fig. 3.



Fig. 4.

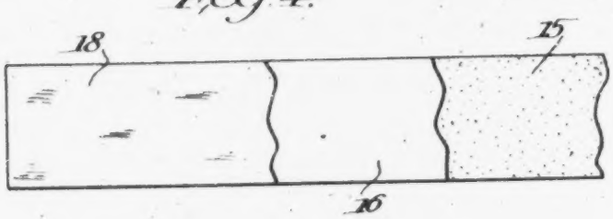


Fig. 5.

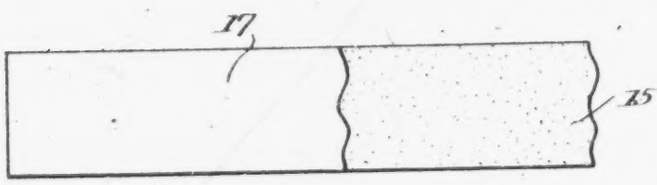


Fig. 6.

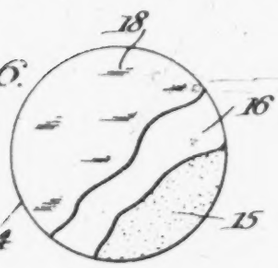


Fig. 8.

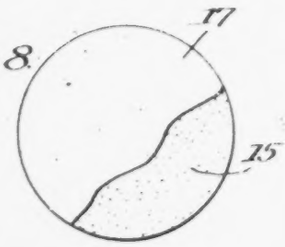


Fig. 7.

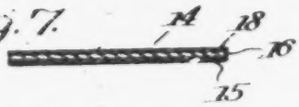
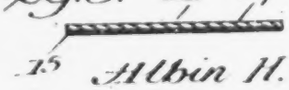


Fig. 9.



Inventor

Albin H. Warth.

By Linsteman, Darby & Linsteman

Attorneys

Patented Apr. 24, 1934

1,956,481

UNITED STATES PATENT OFFICE

1,956,481

SPOT CROWN AND LINER MATERIAL THEREFOR

Albin H. Warth, Baltimore, Md., assignor to Crown Cork & Seal Company, Inc., Baltimore, Md., a corporation of New York

Application June 16, 1933, Serial No. 676,190

16 Claims. (Cl. 215—39)

The present invention relates to container closures and particularly to cap of the crown type which include a shell, a cushion liner affixed thereto, and a center spot facing of resistant material such as paper or metal foil bonded to the liner, by a stratum of liquid-resistant and thermo-plastic or heat-fusible adhesive. A closure of this type is described for example in my Patent 1,899,783 granted February 28, 1933. With such a cap the spot is centered with respect to the liner disc and in use, the spot is interposed between the sealing lip of a container and the cushion liner, whereby the seal is enhanced and the contents are kept out of contact with the cushion material of the liner.

It is important (1) that the spot be maintained in this centered relationship and that the adhesive afford a secure and permanent bond to assure optimum sealing, and (2) that the adhesive stratum which is liquid-resistant be maintained continuous and as a completely and impervious covering to cooperate with the spot facing and afford an additional barrier means to prevent contact of the contents with the material of the cushion liner. It is also desirable that the adhesive be heat-fusible or thermoplastic, whereby the facing may be adhered to the cushion liner by the application of heat and pressure; for example, in accordance with the method described in my Patent No. 1,788,260, granted January 6, 1931.

Thus, the liner material usually of cork or composition cork, i. e., granulated cork and a binder, and occasionally rubber, rubber composition, cardboard or paper materials, has a tendency to shrink or contract, and may in some cases expand, while the cap is being aged in storage and during incidental handling prior to application to a container. This is particularly true with certain types of caps, for example, those containing composition cork, i. e. granulated cork and a binder, where it is desirable that the caps be stored for a period of four to six months before being shipped to the consumer, and during this curing period there occurs a partial shrinkage of the composition cork disc.

Therefore, if the adhesive employed has a tendency to contract or stiffen or dry out, i. e. lose its life or granulate, the continuous adhesive stratum is cracked and physical changes, such as shrinkage in the liner will cause the bond to fracture with consequent further disruption of the adhesive stratum. If the fracture is partial, the facing is loosened and shifted out of center. In many cases, the fracture is so complete that the facing actually falls off or completely separates. Where observable such defective caps are rejected and this is not only expensive from the material standpoint, but usually the entire lot must be again inspected with consequent loss of time.

If the adhesive bond has assumed a brittle state or become weakened and fragile, and the cap is applied to the container, the compression of the cork liner incident to the capping operation which causes it to bulge downwardly in the center, fractures the adhesive and allows the facing spot to shift substantially, and separate from the liner. Hence, the seal is imperfect and the contents are afforded opportunity to contact with the liner disc. Moreover, since the adhesive layer is liquid-resistant as described in my aforesaid patent, this slippage and partial or complete separation of the facing and liner and breaking down of the adhesive stratum, destroys the waterproof barrier between the contents and the liner formed by such layer bonding material. That is to say, the stratum of adhesive coextensive with the facing affords an additional means to prevent the contact of the contents with the material of the liner disc. Since not infrequently, the liquid contents permeate the paper or foil if the facing is defective, any shifting or separation of the facing and disruption of the continuous bonding stratum therefore renders this interposed protecting layer ineffective, in that exposed unprotected areas of the cushion material are presented to the contents.

This same objection arises where the bond or adhesive of the cap loses its life and becomes brittle or contracts and granulates in use upon the container. Mineral waters for example, and other liquids are often bottled under high gaseous pressures of 4½ to 6 volumes of carbon dioxide and stored for a year or more. Should the protective adhesive layer tend to brittleness and contract or granulate or the internal pressure fractures the bond to loosen the spot, exposed portions of the area of the liner will be wetted by the contents, particularly where the same have permeated the material of the facing spot.

Hence, resultant wetting of the liner disc will occur due to displacement of the spot facing and contraction and fracture of the adhesive and waterproof barrier. This wetting or saturation of the liner will cause the same to warp or expand, and as the bulge increases, the break becomes intensified and finally the spot completely separates from the liner. With the breaking down of the adhesive protecting layer, the seal

Page Tightly Bound

is destroyed and contact of the contents with the liner which is generally to be avoided ensues. This produces off-flavors and discoloration, reducing the value of the sealed product.

The above objections and disadvantages are those encountered with caps wherein the facing is united to the cushion liner by conventional adhesives. Such adhesives as gutta percha composition or tissue, referred to in my above mentioned patent, are satisfactory, but do not entirely solve the several problems recited. Among the difficulties which have arisen in connection with the use of caps employing a gutta percha adhesive to unite the center spot to the cushion liner are the following:

(1) Gutta percha in the presence of moisture or high heat, to which the caps are subjected in pasteurization and sterilization processes, tends to swell and to separate the facing from the cushion liner. This is particularly noticeable upon the removal of crown caps from beer and other beverages after the caps have been applied for an extended period of time, such as several months.

(2) Gutta percha has a comparatively greater adhesive affinity for cork (composition or natural) than for metal foil. This is particularly evident upon the removal of caps from bottles after they have been applied for an extended period. It is observed that the center spot facing either falls off or may be readily removed from the cork disc, leaving a distinct layer of gutta percha. Very little, if any, of the gutta percha adheres to the facing. This is so objectionable that bottlers of many products, including "White Rock" water, will not use center spot caps in which the foil is adhesively united to the cork liner with gutta percha.

(3) After application to a bottle for an extended period gutta percha tends to oxidize and lose its plasticity. Consequently, variation of the shape of the cushion liner, such as occurs under temperature and moisture changes during storage of the caps, tends to cause the facing to separate or fall from the cushion liner, due to the lack of plasticity in the gutta percha stratum. Crown caps are frequently stored in the manufacturing plant for months and are stored by the purchaser for an equal period before use. Hence, the desirability of an adhesive which is permanently plastic, or substantially so.

(4) In order to obtain a highly effective adhesion of gutta percha to metal foil, particularly in the warm weather, it is necessary to size the surface of the metal foil before applying the gutta percha. This involves a manufacturing step which it would be preferable to eliminate. The necessity for this pre-sizing becomes evident after the material has been in the cap for a considerable period.

It is an object of the present invention to provide an improved cap including a facing adherently united thereto by an adhesive having substantially all of the advantages of gutta percha as described in my aforesaid patent and which overcomes the foregoing and other objections to a cap containing gutta percha as a uniting medium for the center spot.

I have discovered that in order to meet the severe conditions mentioned above, the cap must include a facing secured to the cushion liner by a layer of thermo-plastic or heat-fusible adhesive which is (1) permanently plastic; (2) non-oxidizable and non-drying and (3) firm at normal or room temperatures. I have further discovered that these characteristics are obtainable by the use of an adhesive containing, as a base, a cellulose derivative adhesive, such as nitro-cellulose. Cellulose acetate may also be used. I have found it highly desirable to enhance the adhesive properties of the nitro-cellulose by the use of a modifying agent, and for this purpose I prefer a resin, and particularly a synthetic resin, as hereinafter set forth in detail. A suitable solvent and also a plasticizing medium may be used.

By permanently plastic, I mean that the adhesive has a longer life than conventional adhesives and is free from any tendency to dry out or granulate or assume a brittle state. That is, in a cap of the present invention, the adhesive exhibits an ability to remain plastic, as well as flexible, resilient and firm, for long periods of time under the various conditions surrounding its manufacture and use upon a container.

By non-oxidizable, I mean that the adhesive stratum is not effected by exposure to air or oxygen and oxygen compounds such as may be produced in a sealed container. This freedom from oxidization is directly traceable to the absence of any substantial amounts of oxygen reacting substances in the composition or drying oils such as tung oil or soya bean oil which tend to oxidize and thus contract or granulate to render the stratum brittle and fragile. While the absence of oils which have an extreme oxidizing tendency with a resultant brittling effect is emphasized, I do not mean to exclude the use of oils which do no have this effect. Oils may be divided into three classes, namely (*a*) oxidizing or drying oils, e. g. tung or linseed (raw Chinawood or raw linseed oil); (*b*) semi-oxidizing oils, e. g. processed rape seed oil, and (*c*) non-oxidizing oils, e. g. such as castor oil and fish oil. The use of the non-oxidizing oils and of small amounts combined therewith of semi-oxidizing oils with the amount being insufficient to have a marked brittling effect is not excluded.

By non-drying, I mean that the adhesive is free of substances which dry out themselves or accelerate drying and cause contraction and brittleness. Thus the absence of oxidizable and non-drying constituents favors the preservation of permanent plasticity for considerably longer periods than can be obtained with conventional bonding agents.

By firm, I mean that the adhesive, at normal room temperatures or temperatures somewhat above or below normal, is non-tacky and does not flow. It is, however, flexible and yielding or resilient, and is plastic, so that it does not fracture or crack. These qualities are important in preserving the necessary continuous liquid-resistant barrier in a cap, and insure that the bond as well as the protective adhesive will not break down where the cushion liner deforms.

In these particular respects, namely the permanently plastic, and non-oxidizable and non-drying characteristics and firmness, as just explained, of the union between the liner and facing spot, the cap of the present invention improves upon the conventional article, and in addition has all of the various advantages recited in my aforesaid patent.

The adhesive of the present invention is fusible at a relatively low temperature, water insoluble and acid-resisting, gas-resistant, forms a thin continuous, elastic and resilient coating or layer between the facing disc and the cushion liner.

The cap of the present invention is, therefore

n improvement over conventional caps, in that y reason of the permanent plasticity of the adsive and its freedom from oxidization and dryng and its firmness under temperature conditions usually encountered, the facing is held to he liner securely throughout its area and no pportunity is presented for objectionable slipng or separation of the facing or disintegration f the continuous barrier layer. Hence, the seal s maintained and opportunity for contact of he contents with the cushion material of the ing is reduced to a minimum.

ch conditions as shrinkage of the liner due to drying or storage, or bulging of the liner upon capping a container or upon becoming wetted do ot impair the union between the facing and the liner, since the constant plastic nature of the adhesive and its incident flexibility and resilience compensate for these physical deformations without affecting the bond or the continuous protective barrier constituted by the adhesive stratum.

The cap of the present invention, furthermore, and of equal importance with the other advantageous characteristics, is capable of production at a considerable saving over the cost of producing conventional caps. This is due (1) to the use of less expensive adhesive; (2) to a shorter period of operation of affixing the spot to the cap and in producing the sheet or strip spot material, and (3) the spot material or the caps do not have to be stored or maintained or acted upon in a predetermined temperature controlled atmosphere or refrigerated, since the adhesive although heat sensitive and thermo-plastic, is, nevertheless, firm at normal or room temperatures and does not melt and flow or tend to dry when the temperatures are somewhat elevated above normal. The same advantageous condition is maintained at reduced temperatures. The advantages of these factors with resultant saving in the cost of production are appreciable when it is understood that substantially 80 million gross of caps are produced yearly.

It is a further objection of present day spot crowns that when subjected to an indentation pressure near the edge, the spot lifts, i. e. the edge separates from the liner. Thus any pressure upon the spot near the edge thereof will act to loosen the same, producing an unreliable closure. Indentation pressures, of course, occur at the capping machine as well as in the hoppers of the crowning machine where the caps are subjected to agitation. Frequently also these indenting pressures are exerted during the handling of thhe caps. When the edge of the spot is turned up even to a slight extent, any sliding action of the flared skirt of another crown contacting with the spot will dislodge it, sometimes completely. As a result the spots are loosened or entirely separated and when the crown is applied to a container, the spot may drop into the container or often the spot having become separated the cap is applied without the spot. Either of these conditions will produce deterioration of the product being bottled and is especially true in connection with pressure beverages as well as beer. The cap having a spot united to the liner thereof by a permanently plastic varnish-like coating in accordance with the present invention, is resistant to these objectionable indenting pressure notwithstanding that the spot be repeatedly subjected to the same.

As is well understood, in the punching out of spots from ribbon or sheet material, there occurs considerable waste, possibly 40%. With the present material, and particularly in the case of metal foils such as tin or aluminum, this waste can be compacted or compressed and directly melted for producing secondary pig metal or may be melted down with other metals in the foundry for the manufacture of alloys such as Alloy 12. Stated again, the use of a foil having a plastic varnish coating increases by several hundred per cent the value of the recovery from the waste over present materials.

In connection with the avoidance of temperature controlled conditions or refrigeration, I have found that a container having a cap of the present invention applied thereto is capable of sterilization without injury to the spot facing or its adhesive bond to the liner. This is advantageous in that the cap can be used upon bottled goods which must be sterilized and the sterilization can take place with the cap on the container, thereby saving a considerable expense in operation.

Referring to the drawing:

Figure 1 represents a bottom plan view of the usual crown cap having the cushion liner and center spot applied thereto.

Figure 2 is a sectional view of the cap of Figure 1 and showing the use of a center spot of paper provided with a resistant surface coating.

Figure 3 is a sectional view of the cap of Figure 1 showing a metal foil facing.

Figure 4 is a view representative of a strip or sheet of the spot material comprising a layer of paper having a coating of varnish on its exposed surface and a layer of adhesive on its undersurface from which the spot of Figure 2 is formed by punching.

Figure 5 is a view representative of a sheet or strip of spot material comprising a layer of metal foil having a coating of adhesive on its undersurface from which the spot of Figure 3 is formed by punching.

Figure 6 is a view of a spot after the same has been punched from the strip or sheet material of Figure 4.

Figure 7 is a sectional view of the spot of Figure 6.

Figure 8 is a view of the spot punched from the foil material of Figure 5, and

Figure 9 is a sectional view of Figure 8.

Referring to the drawing, I have illustrated in Figure 1 an ordinary crown shell 10 having a top 11 and a crimped skirt 12.

Affixed to the shell in the usual manner as by a heat and/or pressure sensitive adhesive or lacquer 10, is a cushion disc or liner 13 of natural cork, cork composition, pasteboard, rubber or rubber composition, or any of the known materials.

A center spot 14 of less diameter than that of the cushion liner 13 is attached to the liner by means of a stratum of adhesive 15. This facing spot is of an area to engage the sealing lip of a container and prevent the contents of the container from contacting with the material of the liner 13.

While the invention is particularly concerned with center spot facings, as shown in Figure 1, it is also applicable to overall facings, that is facings which are coextensive with the area of the liner or disc.

The center spot 14 will comprise the usual spot material such as paper 16, as shown in Figure 2, or metal foil 17, as shown in Figure 3. In the case of paper, the spots 14 are made of express, Kraft rope or other tough qualities having a

Page Tightly Bound

hard or high-gloss finish and are preferably coated with an acid, alkali and oil and water-resistant varnish 18. In the case of the metal foil spot 17, this usually is aluminum or tin foil and its exposed surface is ordinarily not treated.

The undersurface of the spot is provided with a continuous stratum of the adhesive 15 by which the spot is united to the liner 13.

In Figure 4, I have shown a laminated strip or sheet of paper facing material comprising a continuous coextensive underlayer 15 of adhesive, an intermediate layer 16 of paper and a continuous coextensive surface layer 18 of varnish. In Figure 5, I have shown a strip or sheet of metal foil facing material, wherein the continuous and coextensive layer of adhesive is indicated at 15 and the foil at 17. It will be understood that the unitary laminated structure comprising a coextensive and continuous layer of adhesive facing material of paper and resilient varnish or foil, is fed to a suitable punching machine, as described in my aforesaid patent, from which the spots or overall facings are produced and applied to the cushion liner of the cap by heat and pressure.

Referring to Figure 6, I have shown a spot punched from the material of Figure 4 and in Figure 7, I have shown a section of the same showing the unitary character of the article. In Figure 8, I have illustrated a spot punched from the material of Figure 5 and in Figure 9 a section through the same.

The usual practice in the manufacture of caps of the type disclosed has been to employ gutta percha in tissue or composition form which is a heat-sensitive adhesive and which is rendered tacky by the action of heat at the spotting machine and while in this condition the spot is punched out and pressed into contact with the exposed surface of the liner 13 and united thereto by heat and pressure. The usual procedure is in accordance with the method described in my Patent No. 1,788,260, granted January 6, 1931. Gutta percha, however, presents the several objections above mentioned which impair the utility of the cap.

Gutta percha is probably the most widely recognized and used of the various adhesives and cements and is quite satisfactory. The gutta percha is in the form, however, of an oxidizable composition and frequently in storage, as well as when used upon a container, oxidation and drying take place and the adhesive bond becomes brittle or granulates, so that the adherence of the spot to the liner is seriously reduced. So much so, in fact, that where the caps are allowed to remain in storage or are being cured and the liner 13 expands or contracts, the relatively fragile bond is broken and disrupted and the spot is loosened, so that the cap cannot be used. This same condition occurs where the cap is used upon pressure beverages, since the bond becomes stiff or fragile and any inequalities which are produced in the liner as by capping or internal pressures or moisture act to affect the bond, so that the spot becomes loosened and the continuous stratum is disrupted whereupon the contents seep past the spot into contact with the cushion material. In some cases, this actually causes contamination of the product and where seepage exists, should a break in the bond have occurred, the bond is completely lost, since the soaking of the liner will produce a warping which the adhesive uniting the facing to the liner is incapable compensating for.

I have found that with a cap of the c spot type wherein the center spot is unite the cushion layer, in the manner now to be scribed, that a permanent and continuous uid-resistant bond is assured between the facing and the cushion layer and one which not deteriorate in storage or become defe under the normal conditions of usage, i. unaffected by deformation of the liner disc

I employ as the adhesive 15 a compos having all of the advantages of gutta perc as set forth in my aforementioned patent, i. it is heat fusible at a relatively low te npera ture, water insoluble and acid-resistant, ga resistant, elastic and resilient and forms a thi continuous coating or stratum. But additionall y and, moreover, the present composition (1 is permanently plastic, (2) is non-drying an non-oxidizable and hence does not assume brittle state, and (3) is firm, i. e. non-tacky and does not flow at normal room temperature or somewhat elevated temperatures or harde at reduced temperatures remaining within th limits usually encountered plastic, resilient and flexible. Gutta percha tends to soften and flow at but slightly raised temperatures and must often be refrigerated. On the other hand, the cap of this invention may be applied to a con tainer and subjected to sterilization temperatures without injury.

The composition which I employ, i. e. a plastic varnish coating, is prepared as a flowable mass such as a paint or lacquer and is spread or sprayed upon the sheet or strip paper or foil surface, as desired. This composition comprises a resin, preferably a synthetic resin of the polyhedric alcohol-polybasic acid ("Glyptal") type, or a "Rezyl" resin, or a "Vinylite" resin (vinyl acetate), a cellulose derivative, such as nitrocellulose, a plasticizer, such as the aliphatic tartrates and phosphates, and a solvent preferably an organic solvent having proper drying properties. These vinylite resins are usually polymers of vinyl acetate or vinyl chloride, or mixtures of vinyl acetate and the chloride. Vinyl acetate particularly can be combined well with soluble cottons (nitro-cellulose).

The resin is not limited to the glyptal or rezyl type, but should be one capable of dissolving the cellulose derivative and have a high coefficient of plasticity.

The resin or the composition may be modified by adding thereto in small percentage, non-drying vegetable oils such as castor oil to increase the plasticity. Semi-drying or drying oils are not desirable as they undergo oxidation.

Any suitable cellulose derivative may be used and in addition to nitro-cellulose, I use cellulose acetate.

The resin serves to modify and enhance the adhesive properties of the nitro-cellulose, and hence is a desirable modifying agent.

I have mentioned the particular plasticizers but it will be understood that others equally capable of acting as a solvent for the nitro-cellulose are employed. In this connection, I prefer butyl tartrate. Also tricresylphosphate and phthalates such as dibutyl and amyl phthalates are employed. I also use methyl abietate with either ethyl or butyl alcohol. This latter is particularly useful for dissolving dammer and natural resins, as well as vinylite resins, where rubber is desired as a constituent of the plastic var

Page Tightly Bound

sh. I find that a plastic coating of rubber containing varnish is also useful as the adhesive.

The organic solvent preferably consists of luol, ethyl acetate, which promotes quick drying, and denatured alcohol, but, of course, other lvents capable of dissolving the mixture may be nployed. Butyl acetate and butyl alcohol may so be used in the solvent mixture, as well as nzol although it is not preferred. I do not wish be limited with respect to the solvent employed, ovided, it imparts to the adhesive material propdrying properties.

A preferred composition of the above ingredihe is given below.

	Per cent
ynthetic resin	10
itro-cellulose	14
asticizer	6
luol	27
tl yl acetate	33
en tured alcohol	10

The solution is applied to the paper or foil by preading or spraying and will dry at normal temeratures in about twenty minutes.

It is to be noted that the composition is devoid f oxidizing oils which would tend to make the nish or coating brittle. However, it is possible combine with the synthetic resin the semi-oxizing or non-oxidizing oils to make a suitable mposition, and, therefore, I do not intend to xclude the use of oils of this character either in ombination with the other ingredients or as a ubstitute for one or more of the ingredients menoned above.

Instead of allowing the adhesive coating to asume a firm and plastic condition without positive heating and drying, I apply the solution to he paper or foil at a temperature of about 200° F. nd dry the coating at substantially the same temerature. This drying is accomplished in from ne to two minutes at 200° F. and effects a onsiderable saving in time period of operation. t is advisable to keep drying temperature below 50° even though time of drying is short. The rying cycles will naturally vary with the degree f air change, and the tendency is to shorten time f drying. There is formed a permanently plasic coextensive coating or layer, as shown in Figres 4 and 5, whereby spots of the structure hown in Figures 6 and 8 may be readily punched herefrom. The adhesive is applied to the cushion ner by the usual spotting machine and is heatensitive, whereby it is rendered fusible by the eating instrumentality of the spotting machine nd immediately pressed into bonded relation with he exposed surface of the cushion liner. Therepon, the adhesive assumes a firm and permaently plastic condition, whence it is compenatory for any physical changes which occur in he cushion liner and is neither broken nor trained, nor is its continuous, impermeable charcter disrupted by the expansion or contraction of he liner, so that the spot and liner are permaently connected throughout the area of their espective contact surfaces by a continuous proective barrier.

In view of this permanently plastic and firm onnection between the facing and the liner disc, he caps may be manufactured and stored without fear of the spots loosening and may be aplied to containers, particularly those of the ressure beverage type with assurance that the pot will not separate from the liner to either weaken the seal or permit the contents to contact with the liner material.

I have discovered that by employing an adhesive of the character set forth, it is unnecessary to pre-size or treat the surface of the metal foil before applying the adhesive. Moreover, the adhesive stratum does not tend to swell when subjected to moisture and does not lose its adhesive properties throughout pasteurizing temperatures which may run as high as 185° F. Further, I have discovered that a stratum of this character has an adhesive affinity for metal foil, particularly, and also for other facings to substantially the same extent as for cork. This affinity becomes evident after extended use of a cap of this character. It is observed that there is virtually no tendency for the metal foil center to fall from or to readily separate from the cushion layer. Upon forced separation of the facing and cushion layer, a very large portion of the adhesive stratum adheres to the center spot facing and substantially to the same extent as to the cork.

Moreover, I have discovered a very unusual property, namely, that the mechanical pressure to which the facing and adhesive are subjected while the cap is positioned on the bottle improves or enhances the adherence of the center spot facing to the cork disc. In other words, actual tests have shown that, although center spot caps containing a gutta percha stratum deteriorate from the date of manufacture, particularly after being applied to a bottle, so far as adhesion of the center spot to the cushion disc are concerned, the caps of my application actually improve and when examined after a period of use the spots are more firmly united to the cushion disc than when the caps are first manufactured. This continued improvement in the adhesion has been observed throughout periods of over a year and is a vital characteristic of this invention.

I claim:

1. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive.

2. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative.

3. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base.

4. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base and a modifying agent enhancing the adhesive properties of the nitrocellulose.

5. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner posi-

tioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive.

6. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative.

7. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base.

8. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base and a modifying agent enhancing the adhesive properties of the nitro-cellulose.

9. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

10. In a cap which includes a metal shell, a cushion liner of cork, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

11. In a cap which includes a metal shell, a cushion liner, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

12. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

13. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

14. In a cap which includes a metal shell, a cushion liner of cork, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

15. In a cap which includes a metal shell, a cushion liner, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

16. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

ALBIN H. WARTH.

[fol. 729] PLAINTIFF'S EXHIBIT No. 2

April Two, 1934.

Ferdinand Gutmann & Co., Bush Terminal Building No. 19, 39th Street & Second Avenue, Brooklyn, N. Y.

GENTLEMEN:

On behalf of our client, Crown Cork & Seal Company, Inc., we hereby notify you that you are infringing the following patents which it owns:

1,339,066, McManus, May 4, 1920;
Re. 19,117, Warth, March 20, 1934;
1,899,782, Warth, Feb. 28, 1933;
1,899,783, Warth, Feb. 28, 1933;
1,899,744, Warth, Feb. 28, 1933.

The said reissue patent was formerly patent 1,788,260, dated Jan. 6, 1931, and infringement of the same prior to the grant of the reissue is also charged.

You are hereby requested to desist at once from further infringement and to render an accounting for your past infringement. We have been instructed by our client to take steps to enforce its rights under the aforesaid patents in the absence of a statement from you that you will promptly comply with the foregoing requests.

Yours very truly, —— ——.

JJD:U.

[fol. 730] April Twenty-six, 1934.

Reg. Mail.

Ferdinand Gutmann & Co., Bush Terminal Building No. 19, 39th Street & Second Avenue, Brooklyn, N. Y.

GENTLEMEN:

On behalf of our client, Crown Cork & Seal Company, Inc., we hereby notify you that you are infringing the patent to Warth, No. 1,956,481, granted April 24, 1934, which it owns.

You are hereby requested to desist at once from further infringement and to render an accounting for your past infringement. We have been instructed by our client to

take steps to enforce its rights under the aforesaid patent in the absence of a statement from you that you will promptly comply with the foregoing requests.

Yours very truly, —— ——.

MCL:L.

[fol. 731] July Eighteen, 1934.

Registered Mail.
Return Receipt Requested.

Ferdinand Gutmann & Co., Bush Terminal Building No. 19, 39th Street & Second Avenue, Brooklyn, N. Y.

GENTLEMEN:

On behalf of our client, Crown Cork & Seal Company, Inc., we hereby notify you that you are infringing the patent to Warth, No. 1,967,195, granted July 17, 1934, which it owns. A copy of the patent is enclosed.

You are hereby requested to desist at once from further infringement and to render an accounting for your past infringement. We have been instructed by our client to take steps to enforce its rights under the aforesaid patent in the absence of a statement from you that you will promptly comply with the foregoing requests.

Yours very truly, —— ——.

JJD:W.

[fol. 732] PLAINTIFF'S EXHIBIT No. 3.

United States District Court, Eastern District of New York

In Equity. No. 7371

CROWN CORK & SEAL CO., INC., Plaintiff,

vs.

FERDINAND GUTMANN & Co., Defendant

Stipulation

Defendant stipulates that the crown caps supplied to plaintiff by defendant and marked with the letters A-F by defendant's counsel are typical of the crown caps having a natural cork pad and a composition cork pad made and

sold by defendant subsequent to the issue of the patents in suit, before the filing of the bill of complaint herein in which the kind of pad, center spot and adhesive are as follows:

A. Natural Cork	Tin Foil	4620
B. Composition Cork	Aluminum Foil	4620
C. Natural Cork	Varnished Paper	Gutta Percha
D. Composition Cork	Varnished Paper	Gutta Percha
E. Natural Cork	Tin Foil Spot (Flange set in cork)	
F. Natural Cork	Tin Foil Gutta Percha	

That the sample strips furnished to plaintiff by defendant and marked with the letters G to J inclusive, are illustrative of the center spot material used by defendant in the manufacture of center spot crowns prior to the filing of [fol. 733] the bill of complaint herein; that strip G is tin foil coated with gutta percha; that strip H is aluminum foil coated with gutta percha; that strip I is aluminum foil coated with 4620; that strip J is varnished kraft paper coated with gutta percha.

It is also stipulated by defendant that in making the caps referred to in this stipulation, the sample strips I and J were employed in the method set forth in the Cohn patent #1,921,808, within six years preceding the filing of the bill; that defendant also made corresponding caps using strip material G and H prior to the filing of the bill, by the machine and method disclosed in the Johnson patent #1,852,578.

It is also stipulated that nothing contained in this stipulation shall prevent defendant from showing that it made center spot caps from strip material G and H six years and more prior to the filing of the bill.

It is also stipulated that plaintiff is the owner of all the right, title and interest in and to each of the five patents to Warth, and assigned to the plaintiff and that defendant is the owner of the right, title and interest in and to the patent to Cohn 1,921,808 here in suit, but it is understood that this stipulation shall in no way prejudice defendant's right to show that Warth is not the original and first inventor of some of the patents in suit, as alleged in defendant's answer.

It is stipulated that plaintiff is a corporation of the State of New York and a citizen of said State as alleged in the bill of complaint.

It is stipulated and agreed that uncertified copies of Letters Patent, both United States and foreign, may be used with the same force and effect as certified copies thereof, [fol. 734] subject to correction if error should appear, but such patents shall not be taken as proof of the contents of the applications therefor as filed.

It is further stipulated that the attached translations of French patents #463,971 and 415,794 are correct translations of said patents.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

April 30, 1935.

French Republic

National Office of Industrial Property

Patent of Invention No. 463,971

XX.—Novelties and various industries.
4.—Articles of travel and of camping, wrappings, receptacles and accessories.

System of stoppering bottles

Societe: Montaner & Co., residing in Germany.

Application filed October 24, 1913

Issued December 31, 1913—Published March 10, 1914

The invention consists in a system of stoppering bottles which presents certain advantages over known stoppering devices. The latter often comprise a plug of compressed cork which is enclosed in a sheet of tin. In this case the [fol. 735] smooth surface rests on the smooth edge of the neck of the bottle. But it is then not possible to obtain a tight closure of the bottle, because the liquids which contain carbonic acid and which, as known, when heated produce strong pressure, adversely affect the tightness.

By means of this novel stoppering of bottles it is possible to obtain an absolutely certain tightness, and to this end the stoppering is effected in a manner such that the plug which makes the joint and is composed of cork or other substance, covers only the center by a small disk of sheet tin or other appropriate material which is stamped or glued. The metal cap which surrounds the entire tightening plug is placed upon the exterior bead at the upper end of the bottle.

This new stoppering is illustrated in plan view and in section in Figs. 1 and 2.

a is the plug of cork or other material, b is the sheet of tin stamped or pasted, in this arrangement the mass of cork is somewhat compressed into the sheet of tin in a manner to form a reenforcement c of the tightening plug.

The metal cap d which is placed below maintains the whole by its depressed edge e in a known manner on the neck of the bottle.

In this manner there is obtained a secure stopperage of the bottle and the cork does not come into contact with the contents thereof. The liquid is in no manner rendered cloudy and all absorption thereof, by reason of contact with the cork, is thus avoided.

Resume.

This invention relates to:

A system of stoppering bottles composed of a plug of [fol. 736] cork and of a metal cap placed thereabove, characterized by the fact that the non-covered edge of the plug of cork or other material renders the edge of the neck of the bottle tight, while a sheet of tin or other material stamped or pasted to the center of the plug, prevents all contact of the liquid with the plug of cork.

Societe Montaner & Co., by Attorney Armengaud Jeune.

W. E. W.

(Here follows 1 drawing, side folio 737)

570A

737

N° 463.971 Société Montaner & C° Pl. unique

Fig.1.

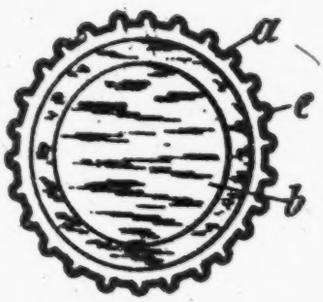
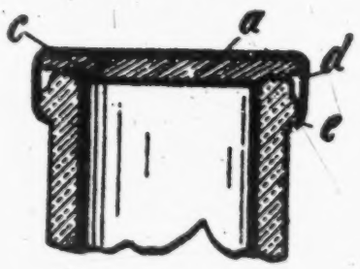


Fig. 2.



BLANK

PAGE

[fols. 738-739] National Office of Industrial Property

Patent of Invention No. 415,794

XX.—Novelties and various industries.

4.—Articles of travel and of camping, wrappings, receptacles and accessories.

Capsules for closing bottles.

Societe: American Cork and Seal Company residing in the United States of America.

Application Filed May 11, 1910

Issued July 22, 1910—Published October 4, 1910.

The present invention relates to capsules for bottles. It has for its object a cap designed to be fixed on a bottle and having at the interior thereof a ring of rubber and a stepped protective disk engaging a portion of the packing ring, in such manner that the contents of the bottle cannot enter into contact with the rubber. The disk has its center fixed to the cap so that the portion thereof which covers a portion of the rubber packing maintains this packing in place; on the other hand the stepped portion of the disk is proportioned in dimensions in such manner that when it is secured on a bottle with the lip of the bottle fitted in the packing, the vertical portion of the disk carries a part of the disk into the mouth of the bottle to form a protective side which contributes to maintaining the contents of the [fol. 740] bottle out of contact with the rubber packing.

In the accompanying drawings:

Fig. 1 is a central vertical section of a capsule for bottles constructed in accordance with the invention; Fig. 2 is a plan of the cap seen from below; Fig. 3 is a central vertical section of the cap applied on a bottle.

4 denotes the cap having a puckered wall 5 by means of which it may be secured on a bottle at 6. It is nevertheless not essential to use a cap with a puckered wall inasmuch as the manner in which the cap is secured on a bottle is not an essential part of the invention.

Within the interior of the cap 4 is mounted a rubber packing ring 7 and a stepped protective disk 8 having an approximately flat center 9, a vertical annular part 10 and

an edge 11 which covers the portion of the ring 7; the disk 8 is secured on the cap 4 by a layer of adhesive substance 12. The disk may be made of aluminum, of tin, or of any other material sufficiently rigid to maintain the packing in place when the disk is fixed on the cap, and it prevents the contents of the bottle from entering into contact with the rubber packing. The vertical annular portion 10 of the disk is of smaller diameter than the mouth 13 of the bottle 6, so that when it is applied to this mouth the lip 14 of the bottle engages the packing, carrying with it the exterior part of the edge 11 and forming within the neck a side 15 which enters into intimate contact with the bottle and effectively separates the contents from the packing. The material forming the disk must be sufficiently flexible so that the lip of the bottle easily engages into the [fol. 741] packing, but sufficiently rigid so that the annular part 10 has adequate rigidity to form the side 15. Any desired material may be used to secure the disk on the cap, e. g., glue, cement, solder, or any other material having the required adhesive properties.

Resume

1. A cap for bottles, comprising a cap, a rubber packing ring, and a stepped protective disk having its center fixed to the cap, and a flanged part covering a part of the packing;

2. A cap for bottles, comprising a cap, a rubber packing ring, and a protective disk fixed on the cap and covering a part of the packing; the disk having an annular vertical portion of a smaller diameter than the mouth of the bottle to be closed so that a part of the disk is carried to the interior of the mouth to form a side.

Societe: American Cork and Seal Company, by Attorney Matray Bros. & Co.

W. E. W.

(Here follows 1 drawing, side folio 742.)

572A

742

N° 415.794 Société : Pl. unique

American Cork and Seal Company

Fig. 1.

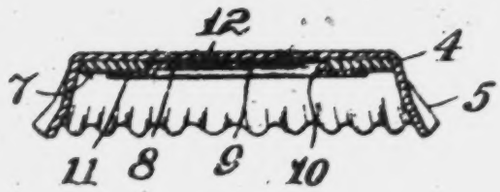


Fig. 2.

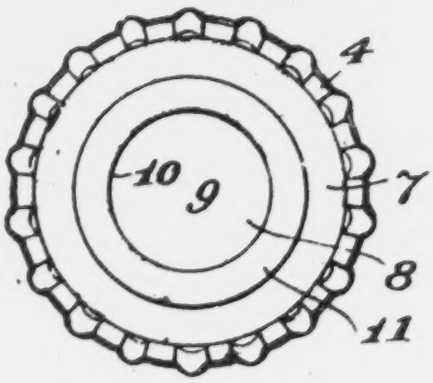
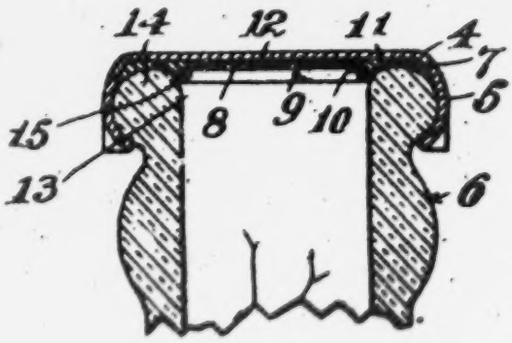


Fig. 3.



BLANK

PAGE

[fol. 743] PLAINTIFF'S EXHIBIT No. 13

UNITED STATES DISTRICT COURT, EASTERN DISTRICT OF NEW YORK

In Equity. No. 7371

CROWN CORK & SEAL COMPANY, INC., Plaintiff,

vs.

FERDINAND GUTMANN & Co., Defendant

Certain Interrogatories Directed to Defendant

Interrogatories dated December 11, 1934, and answers thereto dated December 20, 1934.

Interrogatory 3. With respect to plaintiff's charge of infringement of the Warth patent 1,956,481, April 24, 1934, and defendant's allegations as to its process in Paragraph Fourth (p. 15) of the answer:

(a) State the ingredients (and proportions thereof) of the adhesive employed on the metal foil and paper strips for uniting "center spots" punched from said strips to the cork disc in crown caps in defendant's practice of the method described in the Cohn patent 1,921,808, as alleged in Paragraph Fourth (p. 15) of the answer.

Answer. The defendant, in making its center spot caps, by the method described in the Cohn Patent #1,921,808, uses adhesive purchased on the open market. Defendant does not know the ingredients or composition of said adhesive, but is informed and believes that said adhesive, is [fol. 744] manufactured by the Du Pont Co., under Patent to Maurice V. Hitt, No. 1,710,453 dated April 23, 1929.

Interrogatory 4. With respect to plaintiff's charge of infringement of the Warth patent Reissue 19,117, March 20, 1934, and Warth patent 1,967,195, July 17, 1934, and defendant's allegations with reference to its process contained in Paragraph Fourth (pages 9 and 15) of the answer:

(a) State when defendant began to use the process described in the Cohn patent No. 1,921,808, August 8, 1933.

Answer to (a). The process described in the Cohn patent was used by defendant about March, 1932.

(b) State whether the process employed by defendant for manufacturing center spot crown caps prior to the date alleged in answer to paragraph 4 (a) above, was the process

described in the patent to Johnson, No. 1,852,578, dated April 5, 1932, and, if so, state whether the process described in said patent to Johnson was employed by defendant subsequent to January 6, 1931, in the manufacture of crown caps having center spot facings of paper and/or metal foil.

Answer to (b) Defendant purchased from Johnson in 1928 (as set forth on p. 14 of defendant's answer) certain machines and used the machines described in said Johnson patent until about March 1932, when the machines were modified to carry out the method set forth in Cohn Patent #1,921,808.

(c) If the answer to the first part of paragraph 4 (b) is affirmative, state the ingredients (and proportions thereof) [fol. 745] in the adhesive or adhesives employed on the strip of metal foil or paper from which the center spots were punched in the practicing of the method described in said patent to Johnson.

Answer to (c) Defendant states that it does not know the ingredients or proportions of the adhesive as set forth previously in answer to interrogatory 3, but such machines were used both with a gutta percha adhesive and with the adhesive manufactured by the DuPont Company, as referred to in answer to interrogatory 3.

Interrogatories dated January 2, 1935, and answers thereto dated January 5, 1935.

Interrogatory 5. Referring to defendant's answer to Interrogatory 3 propounded by plaintiff in its interrogatories filed on or about December 10, 1934:

(a) What is the name or designation used by defendant in designating the adhesive referred to in said answer to interrogatory 3 when it purchases such adhesive on the open market?

Answer. Number 4620 thermo plastic cement.

(b) From whom does defendant purchase such adhesive and how is the adhesive designated by the seller?

Answer. The defendant purchases the adhesive from dealers who handle the product of E. I. DuPont de Nemours.

(c) What is the wording on the label of the container of such adhesive as purchased on the open market by defendant?

Answer. The wording on the label is the ordinary DuPont label for 4620 thermo plastic cement.

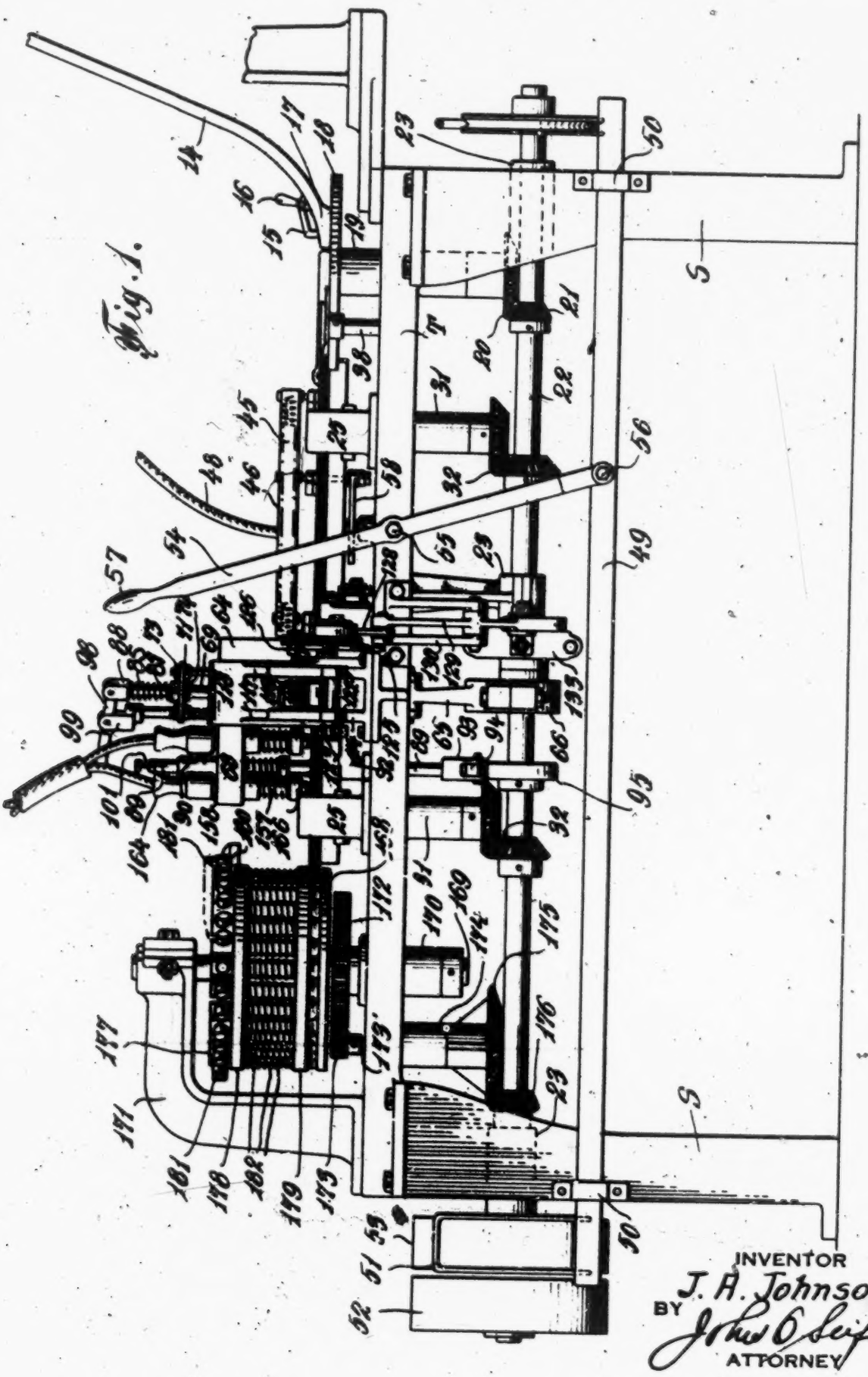
[fols. 746-766] PLAINTIFF'S EXHIBIT No. 14

575 April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 1

Fig. 1.



INVENTOR
J. A. Johnson.
BY John O. Seifert
ATTORNEY

BLANK

PAGE

576

April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 2

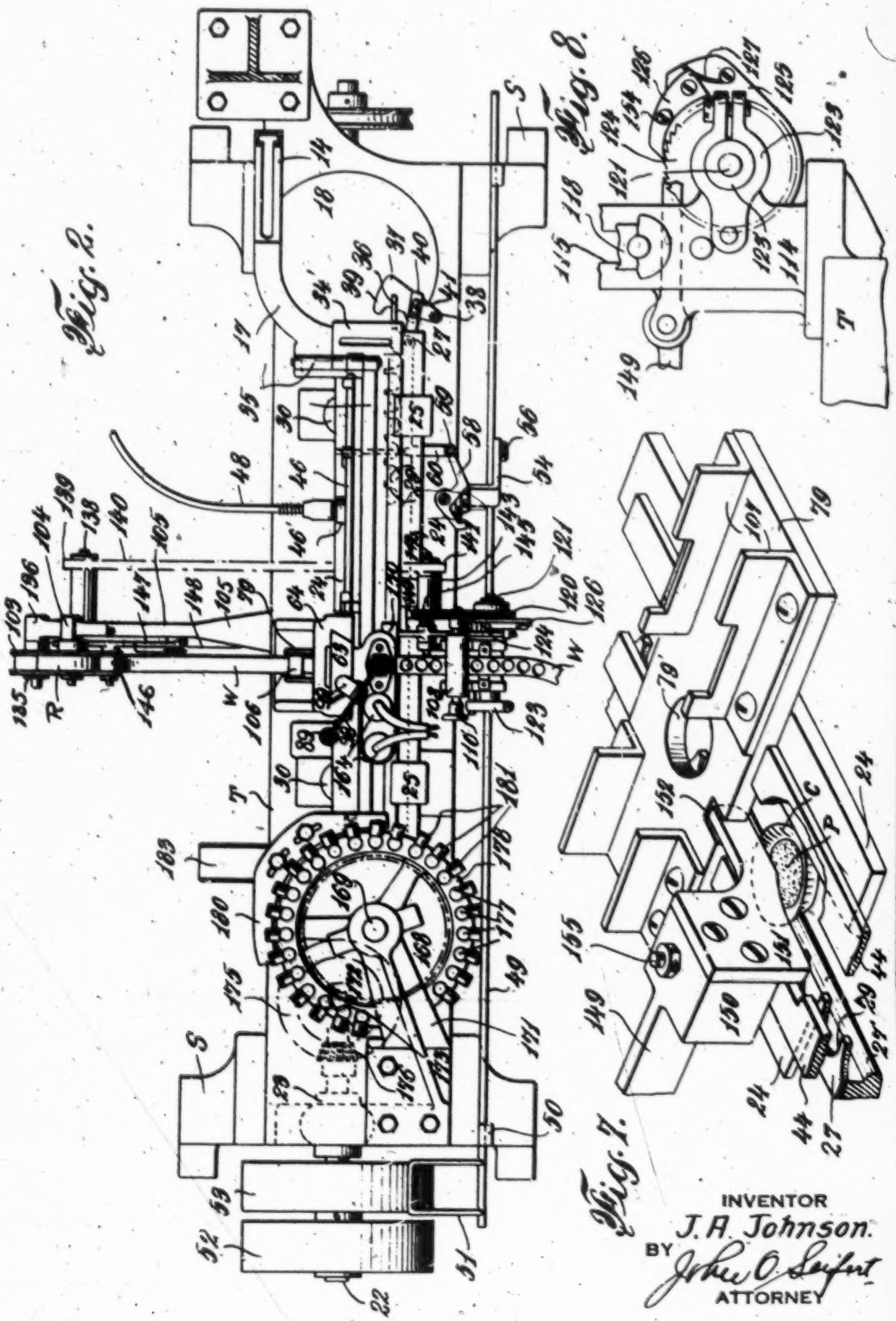


Fig. 2.

Fig. 8.

Fig. 7.

INVENTOR
J. A. Johnson.
BY John O. Seifert
ATTORNEY

BLANK

PAGE

577

April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 3

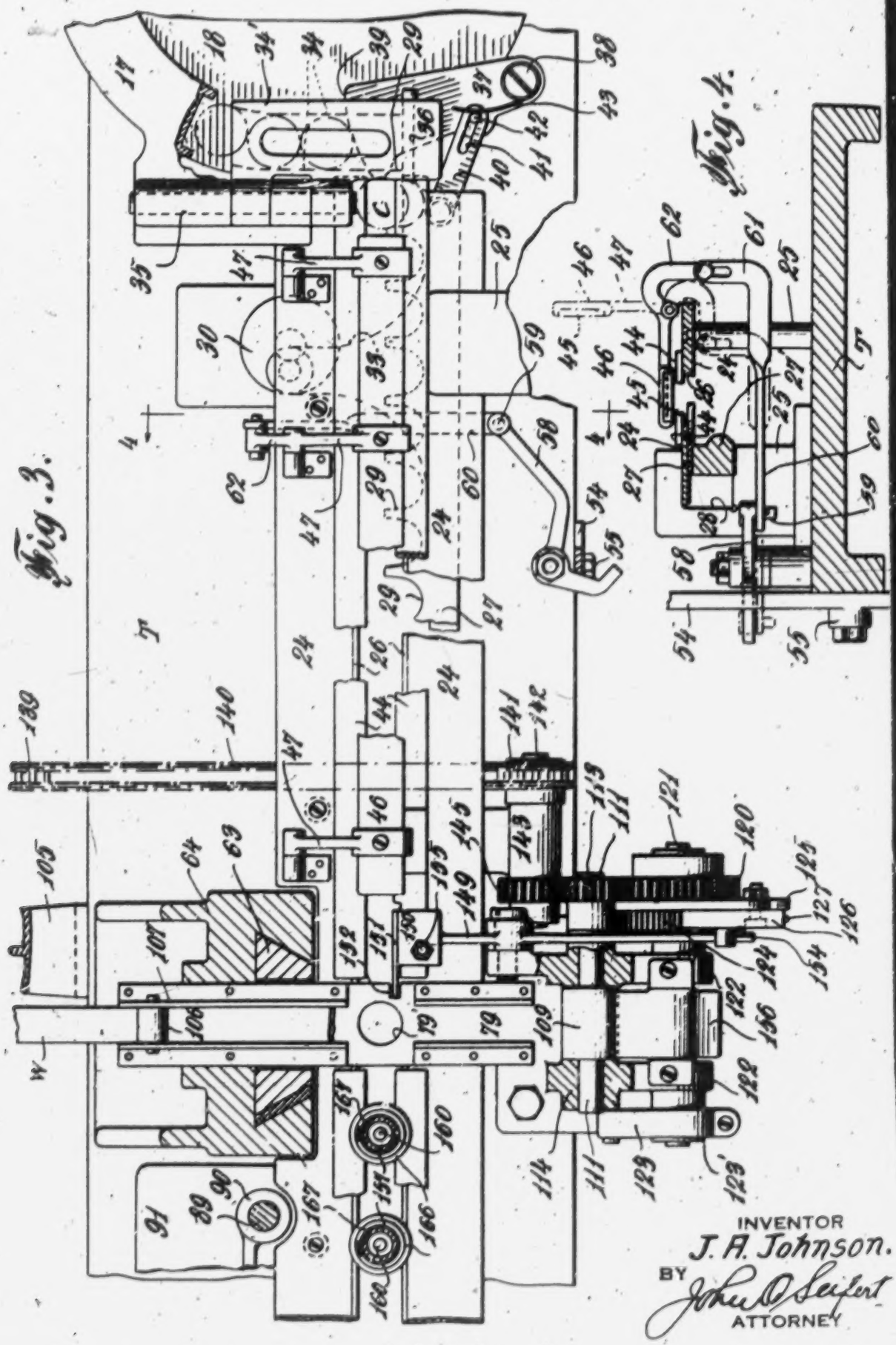


Fig. 3.

Fig. 4.

INVENTOR
J. A. Johnson.
BY John D. Seifert
ATTORNEY

BLANK

PAGE

578

April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 4

Fig. 6.

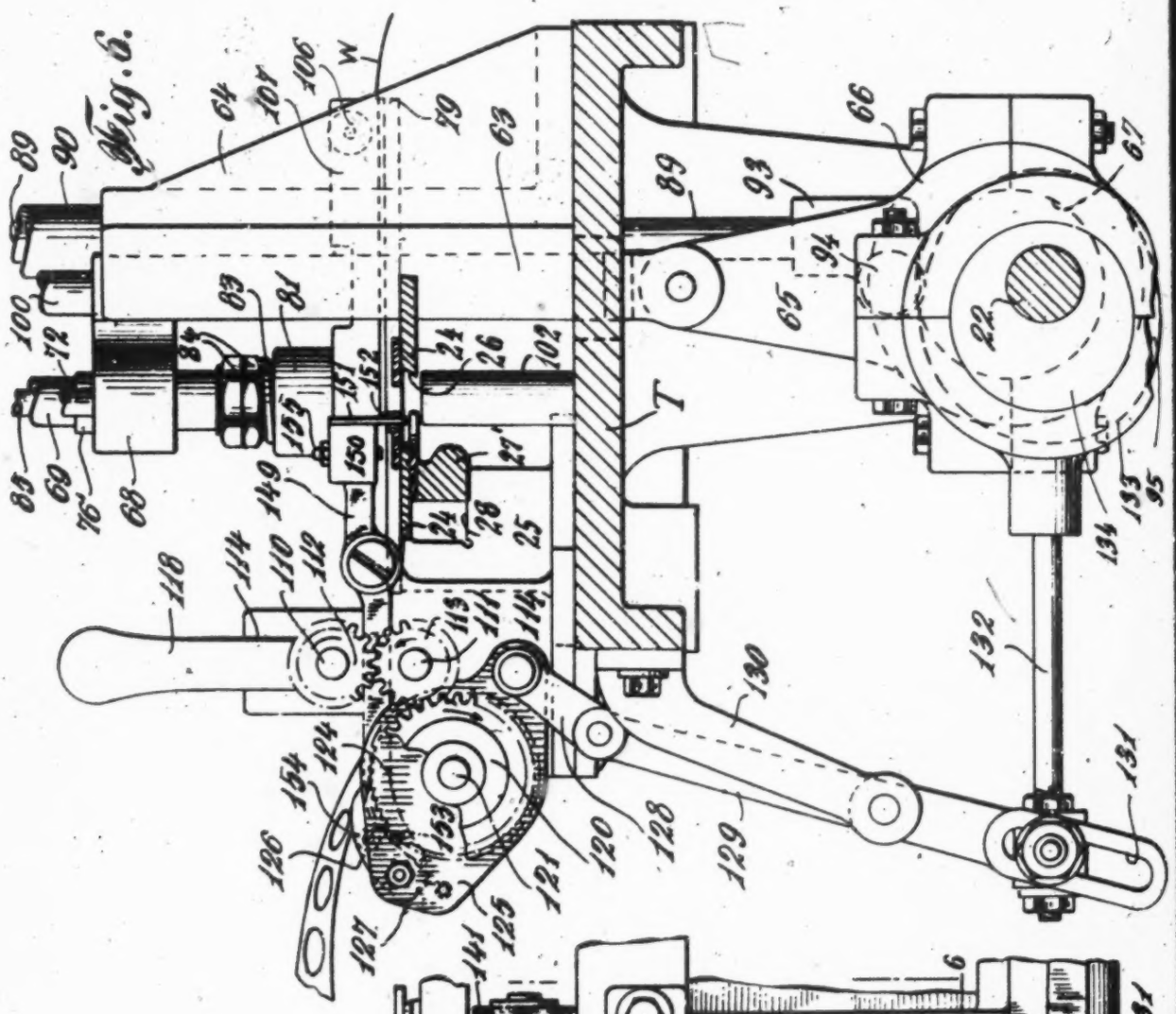
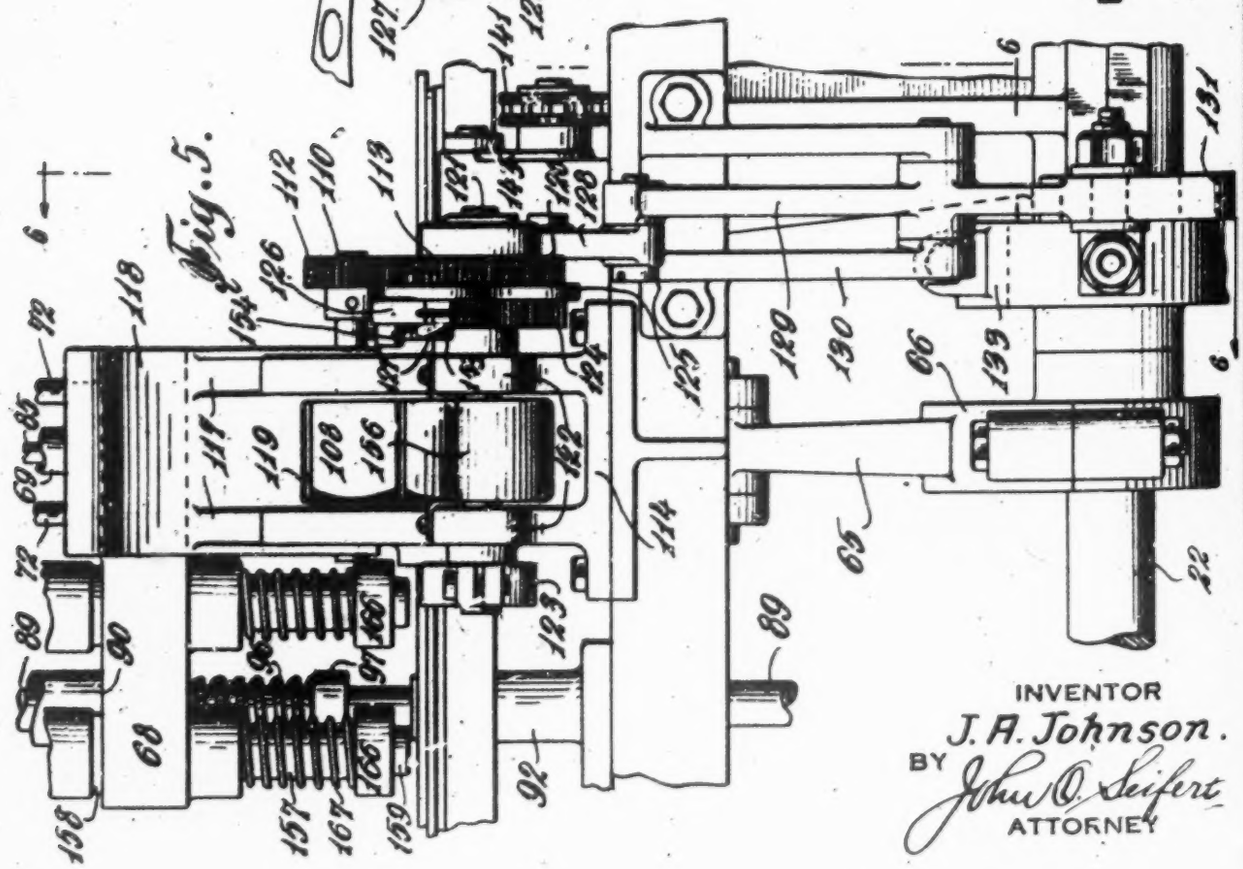


Fig. 5.



INVENTOR
J. A. Johnson.
BY John O. Seifert
ATTORNEY

BLANK

PAGE

579

April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 5

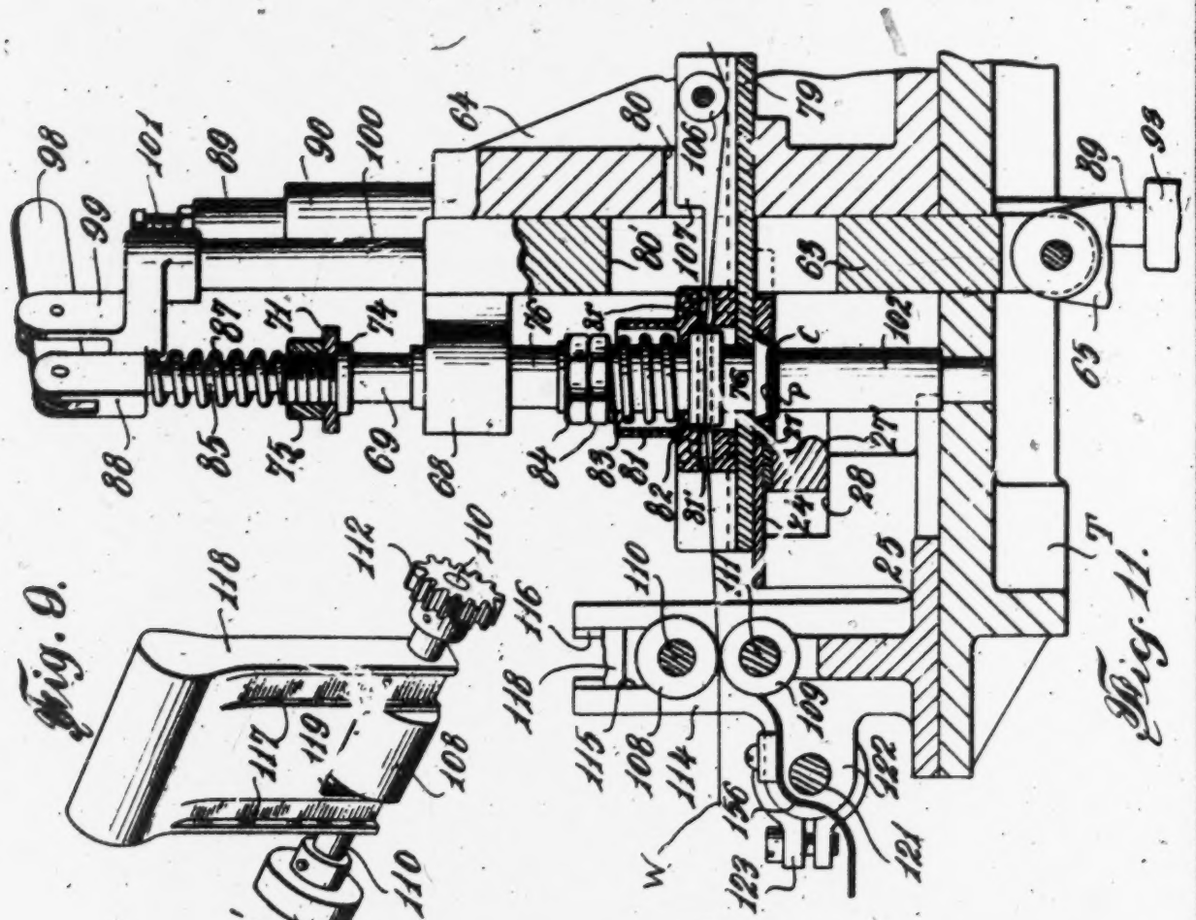


Fig. 9.

Fig. 11.

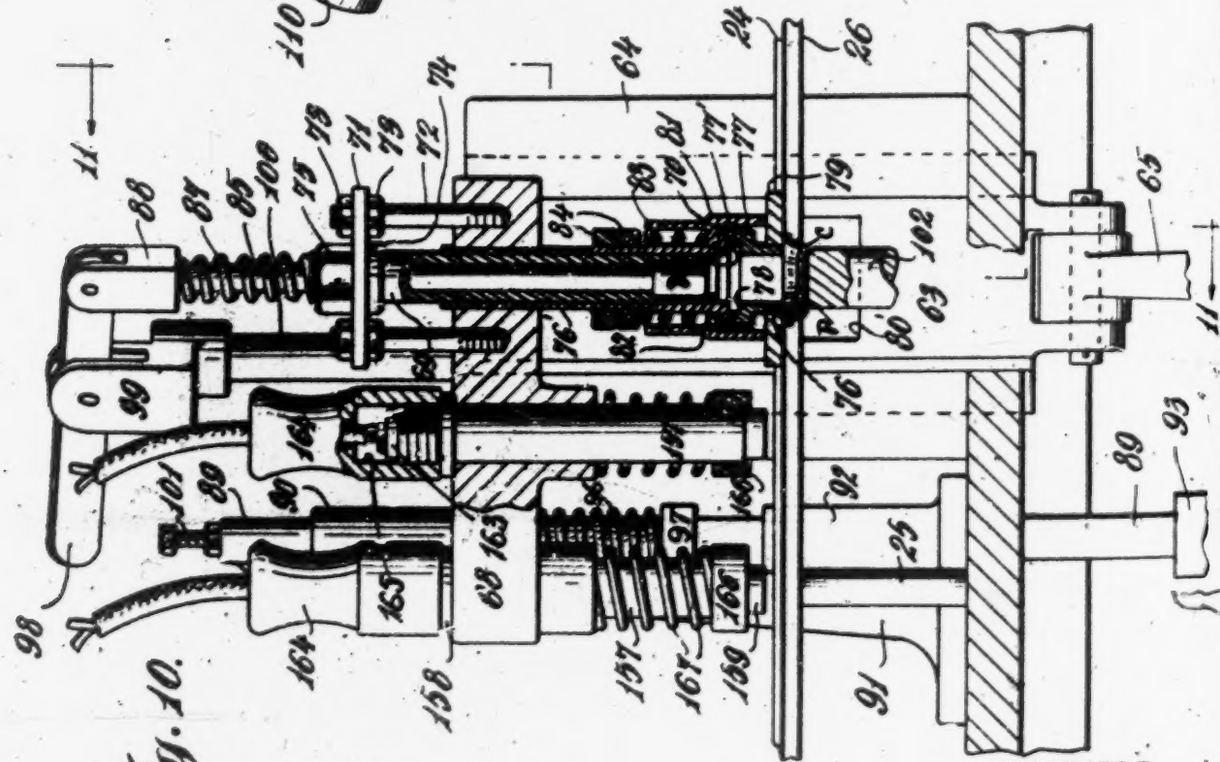


Fig. 10.

INVENTOR
J. A. Johnson.
BY John C. Seifert
ATTORNEY

BLANK

PAGE

580

April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 6

Fig. 12.

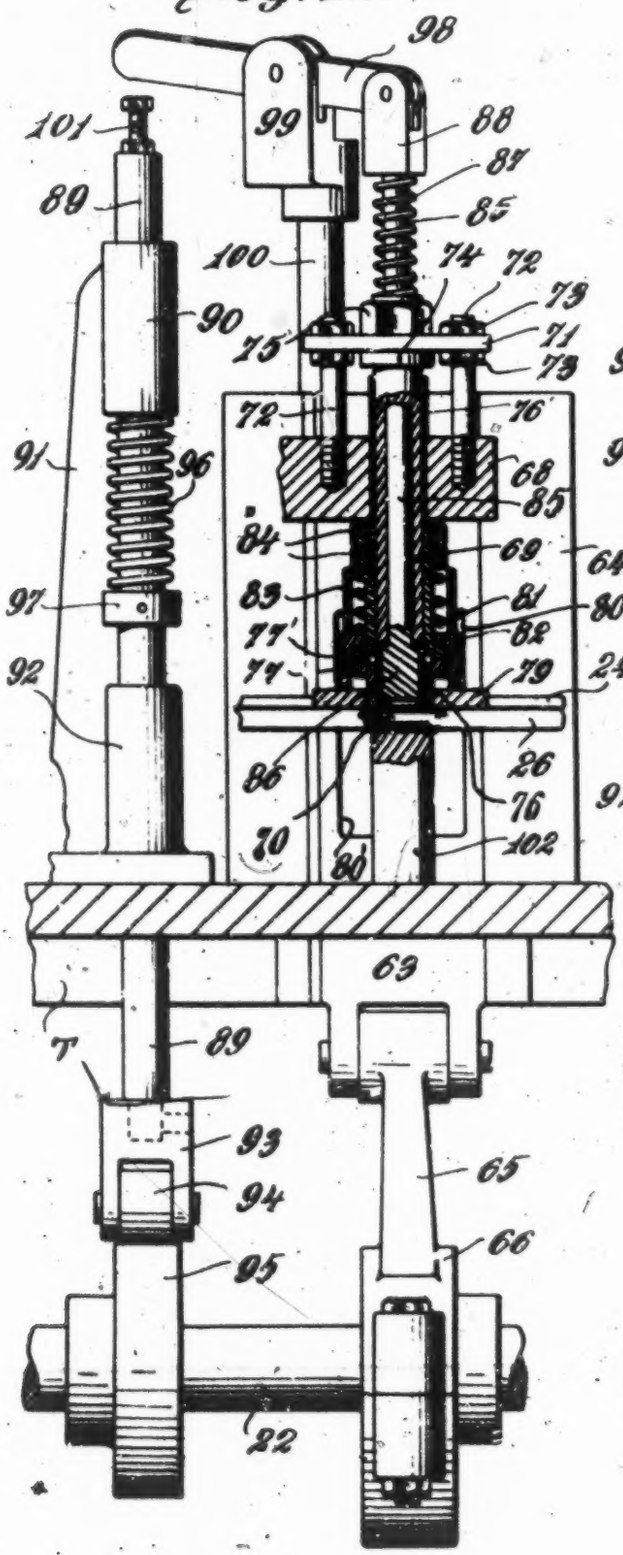
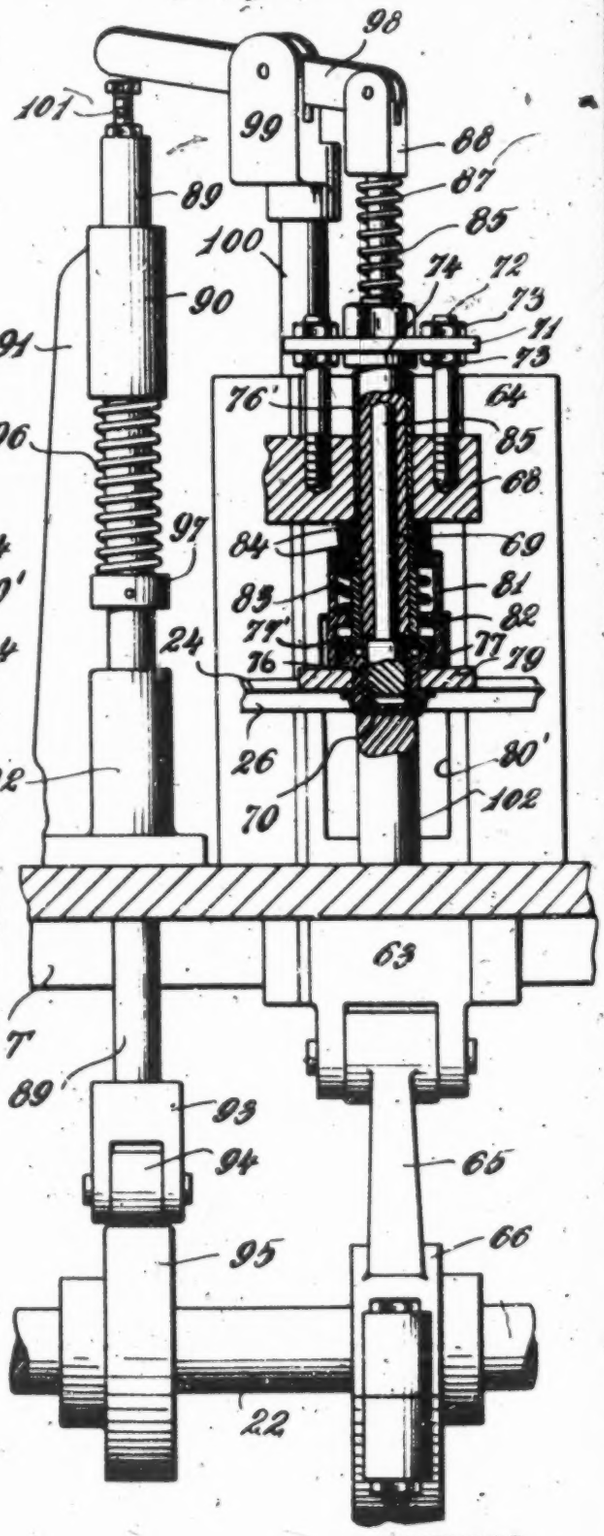


Fig. 13.



INVENTOR
J. A. Johnson.
BY John O. Seifert
ATTORNEY

BLANK

PAGE

581

April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 7

Fig. 14.

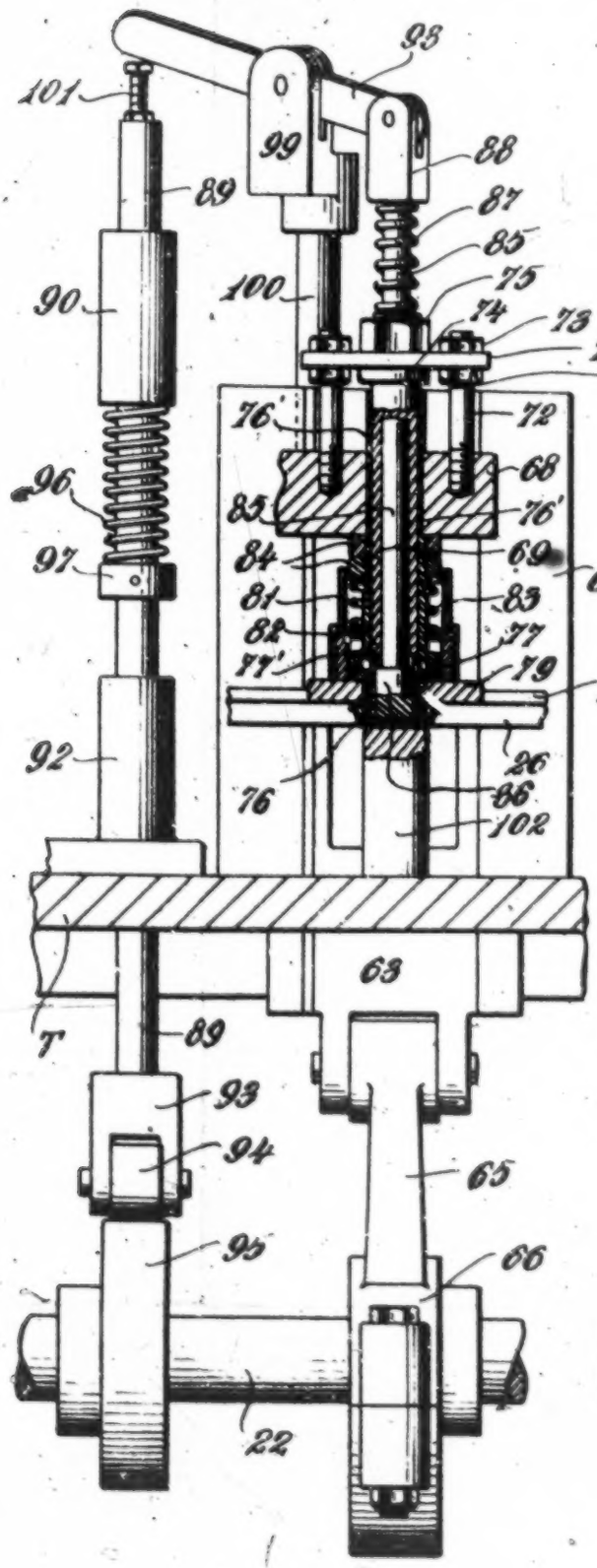
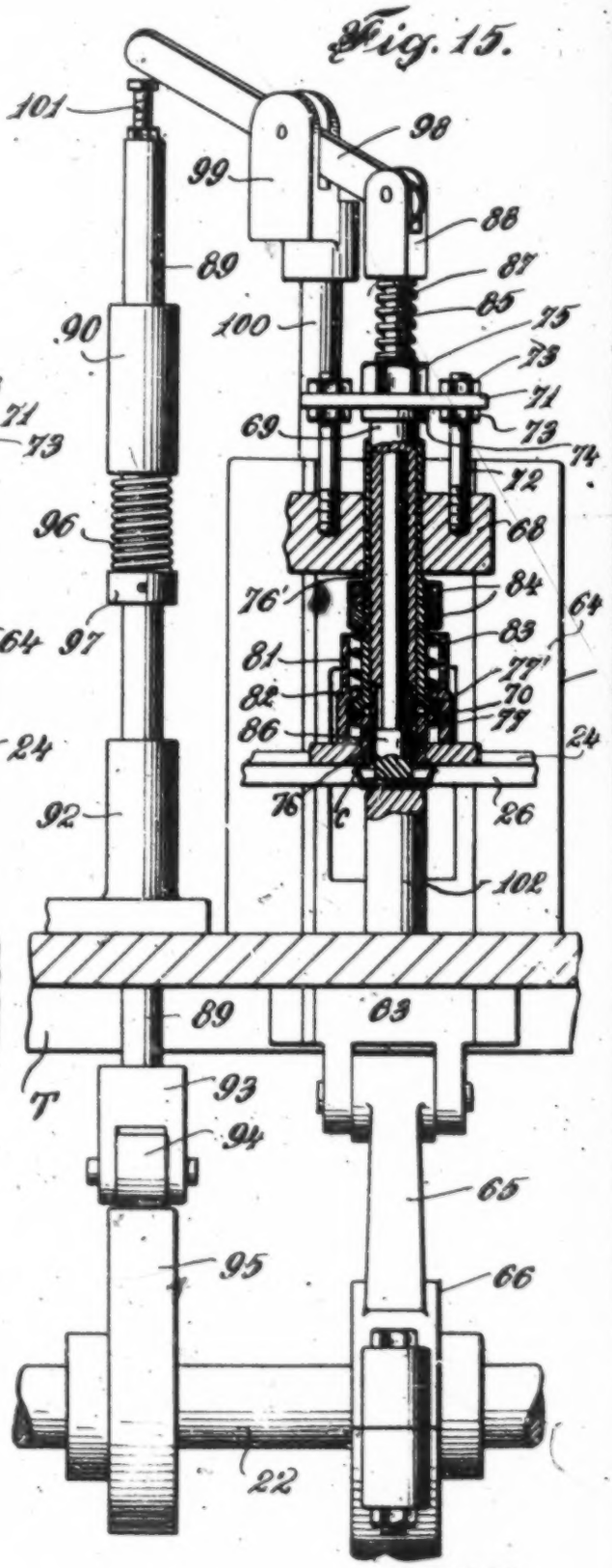


Fig. 15.



INVENTOR
J. A. Johnson.
BY John O. Seifert
ATTORNEY

BLANK

PAGE

582

April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 8

Fig. 16.

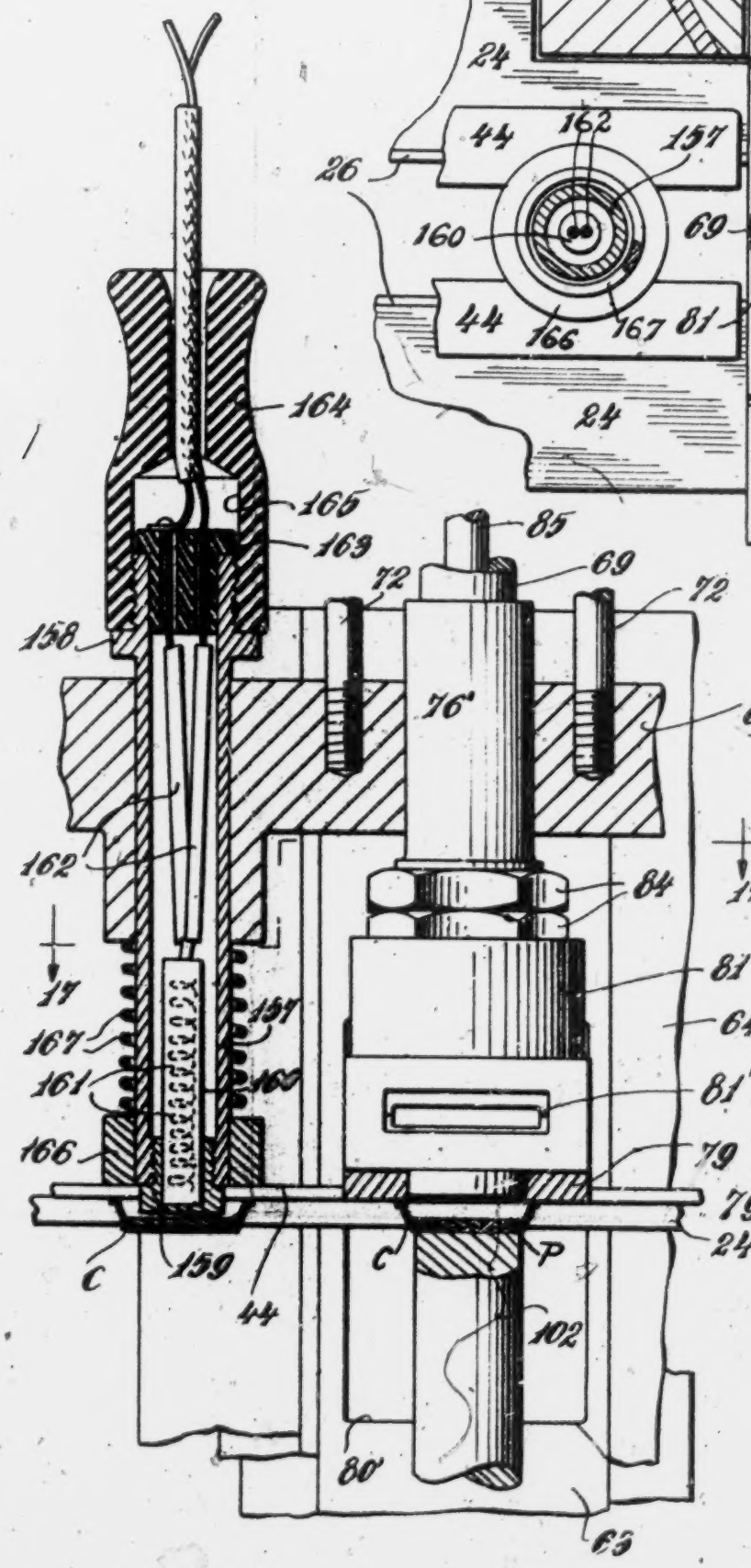


Fig. 17.

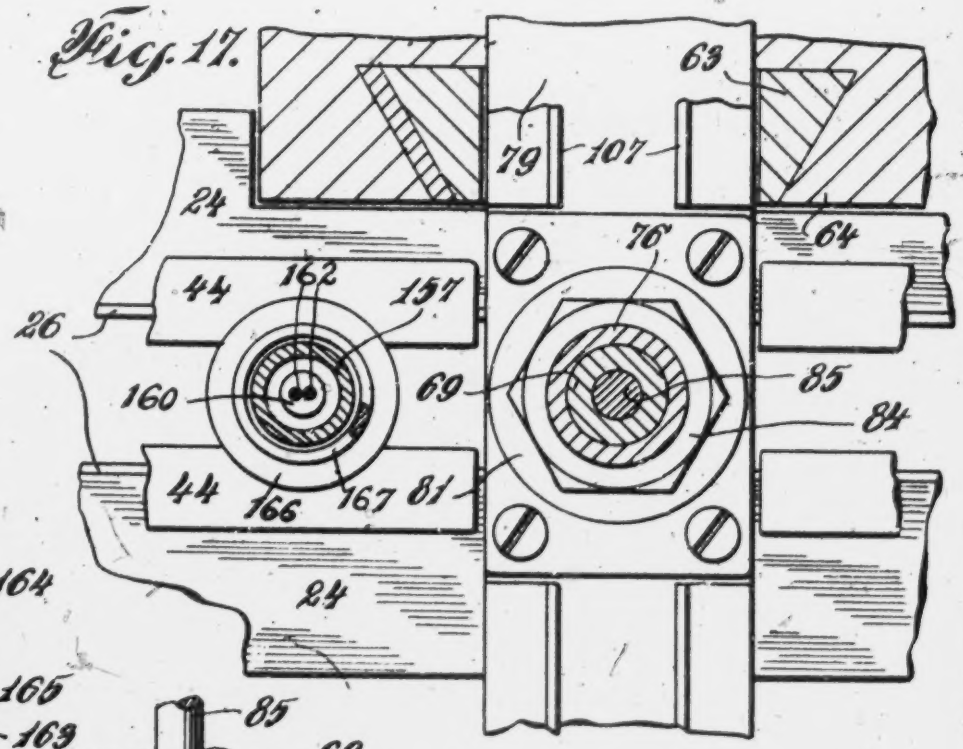
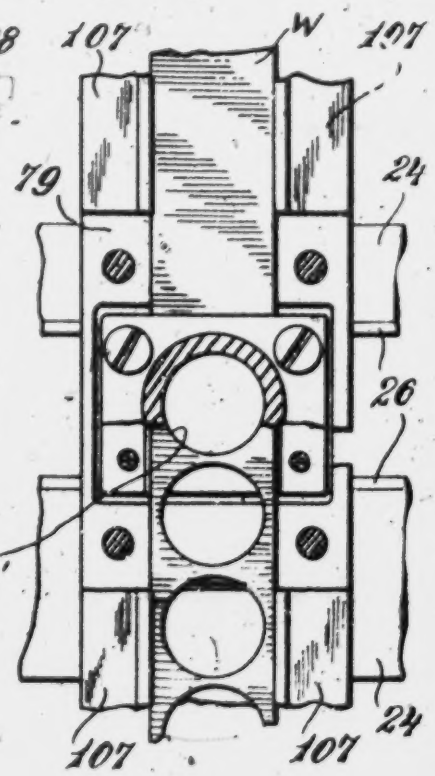


Fig. 18.



INVENTOR
J. A. Johnson.
BY John C. Seifert
ATTORNEY

BLANK

PAGE

583

April 5, 1932. J. A. JOHNSON 1,852,578

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Filed Nov. 26, 1929 9 Sheets-Sheet 9

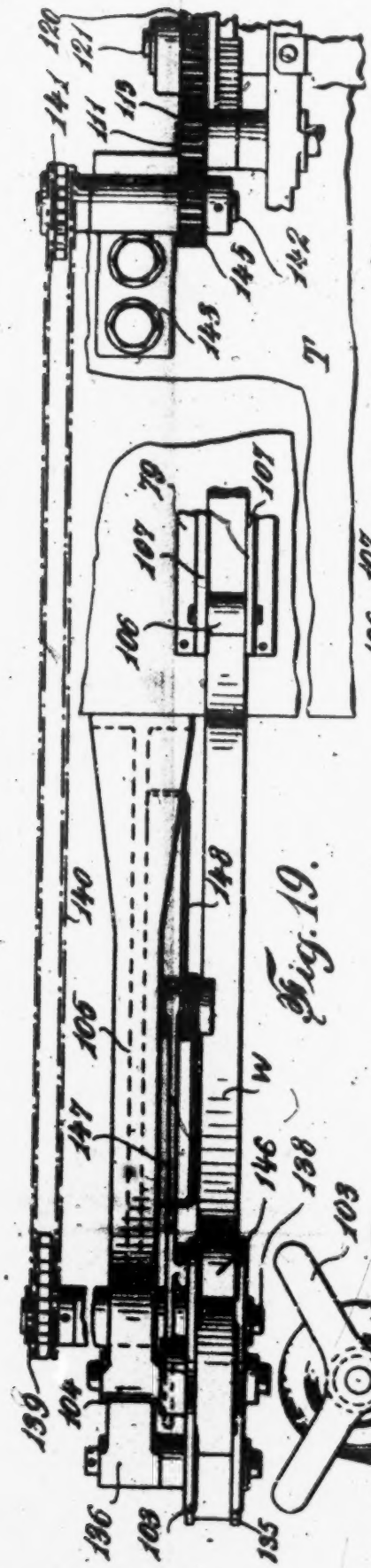


Fig. 19.

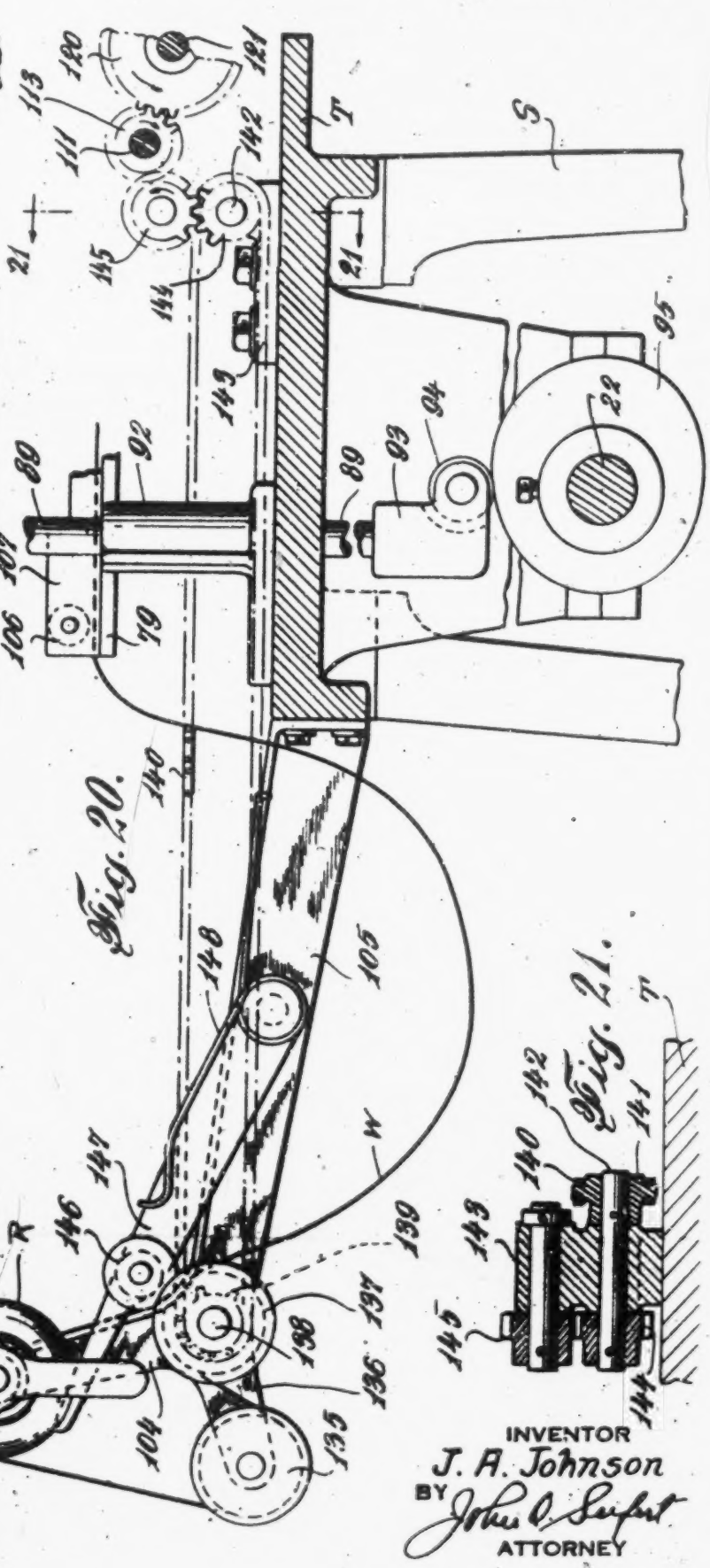


Fig. 20.

Fig. 21.

INVENTOR
J. A. Johnson
BY John A. Seufert
ATTORNEY

Patented Apr. 5, 1932 1,852,578

UNITED STATES PATENT OFFICE

JOHN A. JOHNSON, OF WOODHAVEN, NEW YORK

METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Application filed November 26, 1929. Serial No. 409,793.

This invention relates to assembling and adhesively securing an impervious lining to sealing pads in closure caps of the type known as "crown caps" by the heating of sealing pads in the caps, the inserting of the linings having an adhesive surface normally non-viscous in the caps with the adhesive surface abutting the heated pads rendering the said adhesive surface of the linings viscous to adhere to the pads, subjecting the pads and linings to heat and pressure to assure an intimate adhesion between the linings and pads and subjecting the caps with the pads and linings to pressure during the cooling thereof, and it is the primary object of the invention to provide an improved method and apparatus for this purpose that are highly efficient in use.

By the method and apparatus now in use for this purpose the caps with the pads before the assembling of the linings therein are passed through a zone having an elevated temperature provided by a series of gas flames which scorch the pads with the result that the assembled caps are not acceptable by merchandisers or users of the caps, and it is another object of the invention to overcome this disadvantage by providing electric heating means to produce the elevated temperature zone, which means is adjustably mounted in superposed relation to the exposed surface of the cap pads and adapted to be moved from said position to a position away from the caps when the apparatus is inoperative and thus prevent scorching of the pads and a consequent destruction of the caps.

It is still another object of the invention to provide an improved and novel means to control the delivery of caps having sealing pads from a hopper to means to feed the caps to the means to assemble the lining on the pads.

It is a further object of the invention to provide improved means to positively feed a web of impervious material from a roll of such web to punch and die mechanism to sever linings from the web and said feeding means adapted to be rendered inoperative when there are no caps on the cap feeding means relative to the punch and die mechanism, and to maintain a slack portion of the web between the roll of web and punch and die mechanism and thus prevent a sudden strain on and breaking of the web.

A further object of the invention is to provide means to guide the web of impervious material to punch and die mechanism and centrally position lining disks severed from the web relative to a pad in a closure cap.

Another object of the invention relates to means to place the impervious linings assembled on the pads in the caps under heat and pressure to render an intimate adhesion between the linings and pads.

The embodiment of the invention comprises a punch and die mechanism to which closure caps of the crown type having sealing pads therein are fed from a hopper by a slide depositing the caps with the pads exposed relative to a reciprocating member and delivered by said latter member to feed mechanism and intermittently fed by said mechanism along a support for the caps to the punch and die mechanism through a zone having an elevated temperature produced by an electric heating unit adjustably mounted superposed to the pads in the caps to heat the pads and adapted to be automatically moved to a position remotely of the caps when the apparatus is rendered inoperative. To provide and assemble impervious linings in the caps centrally of the pads a web of impervious material having an adhesive surface normally non-viscous is fed to the punch and die mechanism by means adapted to be rendered inoperative when no caps are positioned by the feed mechanism adjacent the punch and die mechanism. Lining disks are severed by the punch and die mechanism from the web and positioned by the punch in co-operation with a guide and support for the web centrally of and with the adhesive surface of the linings contiguous to the cap pads, the adhesive surface being rendered viscous through the heat of the pads. To effect an intimate adhesion between the linings and pads the caps with the pads and linings assembled therein are moved by the feed mechanism from the punch and die mechanism to means to place them under

heat and pressure comprising electrically heated plungers actuated in synchronism with the punch and die mechanism and impinged against the linings and pads in the caps. To insure the complete adhesion between the linings and pads before discharging the assembled caps from the apparatus the caps are delivered from the electrically heated plungers to means to maintain the linings and pads under pressure during the cooling thereof.

In the drawings accompanying and forming a part of this application, Figure 1 is a side elevation of apparatus illustrating an embodiment of the invention and shown with the parts in inoperative condition.

Figure 2 is a view of the apparatus looking at the top of Figure 1.

Figure 3 is a plan view of the right hand end portion of the apparatus on an enlarged scale and partly in section.

Figure 4 is a sectional view taken on line 4—4 of Figure 3 looking in the direction of the arrows.

Figure 5 is a fragmentary elevational view of the central portion of the apparatus showing the actuating mechanism for the web feeding means.

Figure 6 is a sectional view taken on the line 6—6 of Figure 5 looking in the direction of the arrows.

Figure 7 is a detail view in perspective of controlling means for the actuating mechanism of the web feeding means.

Figure 8 is an end view of a detail of the actuating mechanism of the web feeding means.

Figure 9 is a perspective view of a web impinging roller carrier of the web feeding means.

Figure 10 is an elevational view partly in section, of punch and die mechanism and electrically heated pressure plungers.

Figure 11 is a sectional view of the punch and die mechanism taken on line 11—11 of Figure 10 looking in the direction of the arrows.

Figure 12 is a sectional view on an enlarged scale of the punch and die mechanism in position after severing a lining disk from the web and means to actuate a plunger to strip the severed disk from the punch and impinge it against the pad in a cap.

Figure 13 is a view similar to Figure 12 of the punch and die mechanism showing the punch positioning a severed lining disk in a cap centrally of the cap pad and the plunger about to impinge the severed lining against the pad in a cap.

Figure 14 is a view similar to Figure 13 of the punch and die mechanism and showing the plunger impinging the severed lining against the pad in a cap.

Figure 15 is a view similar to Figure 14 showing the punch receding and the plunger impinging the severed lining against the pad of a cap and stripping it from the punch.

Figure 16 is a sectional view of a heated plunger to place a lining and pad assembled in a cap under heat and pressure and showing the same in relation to a portion of the punch and die mechanism.

Figure 17 is a cross sectional view taken on the line 17—17 of Figure 16 looking in the direction of the arrows.

Figure 18 is a sectional plan view of means to guide the lining web relative to the punch and die mechanism.

Figure 19 is a plan view of a web roll and means to guide and feed the web from the roll to the punch and die mechanism.

Figure 20 is a side elevation looking at the bottom of Figure 19; and

Figure 21 is a sectional view taken on the line 21—21 of Figure 20 looking in the direction of the arrows, to show the connection between the means to feed the web to the punch and die mechanism with the means to feed the web from the web roll.

In the embodiment of the invention illustrated the operative parts are mounted upon a suitable framework comprising a table T supported upon standards S.

The caps C having sealing pads P usually of a cork composition adhesively secured therein, are delivered from a hopper (not shown) by a chute or slideway 14 arranged with flanged sides and top to prevent the caps from jamming or leaving the chute, and having a pivotally mounted gate 15 at the lowermost portion of the chute operated by a lever 16 to control the delivery of the caps from the chute, Figure 1. The caps are delivered from the chute to a tunnel-shaped guide member 17 extended from the end of the chute 14 in an arcuate direction, said guide being superposed and opened to the peripheral portion of a disk 18 rotatably supported by a sleeve 19 mounted on the table T to extend from the opposite faces thereof. The disk is rotated by a shaft rotatably carried by the sleeve 19 to extend from the ends of the sleeve with one end of the shaft fixed to the disk and having a pinion 20 fixed at the opposite end meshing with a pinion 21 fixed to a horizontal extending drive shaft 22 rotatably mounted in bearings 23 carried by the table T and standards S. The caps are moved from the outlet of the chute 14 along the member 17 by the rotation of the disk 18 to a position at the end thereof in alinement with a space between a pair of spaced rails 24 mounted above and parallelly of the table T by a series of supports 25 and having the opposite edges bevelled, as at 26, Figure 3, for the slidable support of the caps at opposite skirt portions to prevent the scratching or marring of the decorative surface thereof.

The caps are intermittently advanced or fed along the rails 24 by a feed rack embody-

ing a plate 27 carried by a slide 27′ mounted in recesses 28 of the supports 25 for one of the cap supporting rails 24 (Figure 4) to have longitudinal and lateral movement. The plate is arranged with laterally extending fingers or projections forming spaced recesses 29 substantially of the size and shape of the caps to engage the caps laterally and feed the same along the rails 24 by a reciprocatory movement thereof consisting of four separate quadrant stages produced through the rotation of a pair of disks 30 (only one of which is shown at the right of Figure 3) carried by shafts rotatably mounted in sleeves 31 extending from both surfaces of the table T similar to the sleeve 19, the shafts having pinion driving connections 32 with the drive shaft 22. The feed rack 27 is pivotally connected to the disks 30 eccentrically of the axis of the disks by arms 33 extended laterally of said rack plate adjacent opposite ends. By the rotation of the disks movement is imparted to the rack laterally to engage the rack fingers between and into engagement with the caps on the rails 24, then in a direction longitudinally of said rails to feed caps along the rails, then laterally to move the rack fingers out of engagement with the caps, and then longitudinally in reverse direction to position the rack fingers between successive caps on the rails 24.

The caps, as they are moved by the disk 18 from the guide 17, are engaged between guide ledges 34 extended downward from the opposite longitudinal marginal portions of a plate 34′ hingedly carried by the guide member 17, as at 35, in alinement with the delivery end thereof to extend over the disk at the entrance to the space between the cap supporting rails 24 and to permit lifting of said guide plate away from the disk 18 to remove caps which may become jammed therein, or for inspection, cleaning or otherwise. The one guide ledge 34 is cut away at the entrance to the cap supporting rails for the delivery of the caps laterally from the disk 18 to said rails.

The movement of the caps through the rotation of the disk 18 along the guide ledges 34 is arrested by a stop 36 in the form of a finger extended from the end of one of the rails 24 at a right angle to the guide plate 34′ to the end of the outer guide ledge 34. The cap abutting the extended rail portion 36 is moved forward onto the bevelled edges 26 of the rails 24 by an ejector member 37 pivotally mounted at one end on a supporting stud 38 on the table T, to extend over disk 18 and have oscillatory movement between said disk and guide ledges 34 and the extended rail portion 36 to engage the cap by a projection extended laterally from the free end, the free end of said ejector being in an arc, as at 39, to engage the successive cap and maintain the caps in their respective positions in the guide and chute during the delivery of the forward cap onto the rails 24. The ejector 37 is actuated by and in sequence with the movements of the feed rack through a link 40 pivotally connected at one end with the feed rack 27 and connected to the ejector member adjacent the mounting thereof by pin 42 fixed in and extending laterally from the ejector engaging a slot 41 in the link, the ejector being urged in a direction toward the guide 34′ under the tension of a leaf spring 43 anchored on the ejector support and slidably engaging the pin 42 to assure the positive actuation of the ejector and to afford loose motion for the variations in the movements of the parts.

The longitudinal movement of the feed rack in a direction away from the disk 18 and the corresponding forward movement of the ejector 37 effected by the spring 43 will transfer the cap abutting the stop 36 onto the rails 24 into engagement with the end feeding finger of the rack slide 27, as shown in Figure 3. During the next two quadrant steps of the movement of the rack slide, the ejector 37 will be moved away from the guide 34′ through the link connection thereof with the rack slide permitting the successive caps in the guide 17 to move by the force of the weight of the caps down the chute 14 and the rotation of the disk 18 positioning the foremost cap against the stop 36 opposite the ejector projection, the recess between the two fingers 29 at the end of the rack being positioned opposite the cap positioned by the ejector on the rails 24 and upon the successive movement of the feed rack towards the caps on the rails 24 positioning the end feed finger in the rear of such end cap on the cap supporting rail 24 and moving the rack fingers that were in front of caps to the rear of the respective caps on the rails 24. During the next step in the movement of the feed rack the caps on the rails are moved forward a distance equal to the width of the rack recesses, the cap in the forward recess being delivered from the rails and the foremost cap in the guide 34′ transferred to the rails 24 by the ejector 37 in conjunction with the first slide projection as described.

To retain the caps on the rails 24 guide rails 44 are secured upon the tops of the rails 24 with the longitudinal marginal portion overhanging the beveled cap supporting edges of the rails, as shown in Figure 7.

To heat the pads P of the caps to render viscous an adhesive normally non-viscous, such as caoutchouc, carried either by said pads or the linings to be positioned on the pads, the caps are passed through a zone having an elevated temperature as they are moved along the rails 24 and produced by an electric heating unit 45 comprising an electric resistance wire embedded in a carrier having low electric conductivity and high

thermal conductivity material arranged within a receptacle 46 pivotally mounted by arms 47 on one of the rails 24 to adjustably position the unit in superposed relation to the space between the rails and the exposed pads, as shown in full lines in Figure 4, and in a position remotely of the caps on the rails, as shown in dot and dash lines in said Figure 4. The terminals of the resistance wire are electrically connected to contact terminals of a connection plug member mounted on the receptacle, as at 46', for connection with a source of electricity by electric conductors 48 through the usual plug connection.

To prevent scorching of the pads of the caps arrested below the heating unit due to the rendering of the apparatus inactive through the disconnecting of the apparatus from the source of power, in the present instance effected by shifting a belt (not shown) from a pulley 52 fixed to the drive shaft to a pulley 53 loose on said shaft, said belt shifter comprising a rod 49 slidably mounted in brackets 50 on standards S and carrying a yoke member 51 for the passage and embracing the opposite edges of the belt. The belt shifter is actuated by a lever 54 pivotally mounted intermediate the ends thereof on the side of the table T, as at 55, and is offset as shown in Figure 2, to allow for the variation in the relative positions of the belt shifter bar 49 and the side of the table T for pivotal connection of the lower end of the lever with the shifter bar, as at 56, the opposite end of the lever being arranged with a hand grip 57 for the manipulation of the lever. The manipulation of the lever 54 actuates the heating unit to different positions relative to the rails 24 through a bell crank 58 pivotally mounted on top of the table T having one end thereof extended into the path of movement of and arranged to be engaged by the lever 54, and at the opposite end pivotally connected, as at 59, to one end of a link 60 having the opposite end 61 bent at a right angle and pivotally connected to an extended right angular portion 62 of one of the heating unit supporting arms 47. By the moving of the lever 54 to shift the belt to the pulley 52 the link 60 will assume the position shown in full lines in Figures 3 and 4, by the moving of the heating unit toward the caps on the rails 24 caused by the weight and the eccentric mounting of the heating unit relative to the extended portion 62. By actuating the lever 54 to shift the belt onto the loose pulley 53 the lever 54 will engage and move the bell crank 58 to the position shown in Figure 2, and through the link 60 the heating unit will be actuated away from the caps on the rails 24, as shown in dot and dash lines in Figure 4.

For the positioning and securing of impervious linings to the heated cap pads the caps are intermittently delivered by the reciprocation of the feed rack 27 to punch and die mechanism carried by a slide 63 mounted to have vertical sliding movement in a standard 64 fixed to the top of the table T, and said slide pivotally connected to a crank arm 65 connected with a strap 66 loosely encircling an eccentric 67 (Figure 6) fixed on the drive shaft 22 to impart reciprocatory movement to the slide. The slide is arranged with a laterally extending arm 68 fixedly carrying a punch 69 having an enlargement 70 at the end, as shown in Figures 10 to 15. The punch is extended through a perforation in the slide arm 68 and adjustably secured by a perforated plate 71 fixed in superposed relation to the arm 68 by studs 72 threaded in the arm and secured in alined perforations in the plate by nuts 73 threaded onto the studs and abutting both surfaces of the plate, the upper end of the punch being threaded and engaged in the perforation of the plate with an annular enlargement 74 on the punch abutting the under surface of the plate and secured to the plate by a nut 75 clamping the plate to the punch enlargement 74. The punch extends below the slide arm 68 in alinement with the space between the cap supporting rails 24 and a support in the form of a post 102 for a cap positioned relative to said support on the rails 24 by the feed rack 27 and co-operating with a die to sever linings from a web W. The web comprises a material which is not only impervious to moisture but also to the deteriorating action of the contents of a receptacle to which the closure cap is applied, usually comprising tin foil, having one face arranged with an adhesive coating, such as rubber, which is non-viscous under normal temperature and is adapted to be rendered viscous by an elevated temperature. The die comprises a tubular member 76 having an enlargement 77 at one end with a transverse recess therein of rectangular shape in cross section and of greater width than the diameter of the bore through the tubular portion 76 to serve as a guide and support for the web, the shoulder formed by said enlargement constituting the cutter edge of the die with which the punch co-operates to sever lining disks from the web, as shown at 78. The die is carried and slidably mounted on the punch to participate in the movement of the punch so that the punch and die may have movement relative to each other by a sleeve member 76' engaged upon the punch and extending through the perforation in the slide arm 68 through which the punch extends, said tubular member having an enlargement 77' with a transverse recess similar to the die 76 and arranged in opposed relation to said enlarged portion of the die, as shown in Figures 10 to 15. The tubular die portion slidably engages in a perforation of a support and guide 79 for the web W extending transversely of the table and through an opening 80 in the

slide support 64 and an opening 80′ in the slide 63, (Figure 11) and supported upon the bottom wall of the opening 80 and one of the supports 25 for a cap supporting rail 24, said guide and support 79 being arranged above and in contiguous relation to the cap supporting rails 24. The die has a predetermined movement through a perforation 79′ in the guide 79 limited by the enlargement 77 of the die engaging the guide 79, to engage the tubular portion 76 with a pad P in a cap C fed along the rails 24 and positioned relative to the support 102 (Figures 13 and 14) to serve as a guide for a lining disk severed from the web by the punch and positioned by the punch to the cap pad on the support 102. The carrier sleeve 76′ slidably engages a perforation in an inwardly extending annular flange 82 of a tubular member 81 superposed to the web support 79, said tubular member or housing 81 having oppositely disposed guide openings 81′ in line with the guide recesses in the enlarged portions 77, 77′ of the die 76 and its carrier 76′. The die is normally urged to position with the tubular portion 76 out of the path of travel of the caps upon the rails 24 by a spring 83 coiled about the sleeve 76′ and confined between the flange 82 and nuts 84 threaded onto the sleeve 76′. The web is delivered from a roll R of such web to the punch and die mechanism with the adhesive surface lowermost, and in the operation of punching linings therefrom the punch is actuated to sever a lining disk from the web, the punch assuming substantially the position shown in Figure 12, the lining disk severed from the web being guided through the tubular portion of the die by the punch.

During this operation of the punch the die is retained in its uppermost position by the spring 83, and as the punch assumes the position shown in Figure 12 the slide arm 68 engages with the nuts 84 on the die carrier thereby imparting simultaneous movement to the punch and die and moving the tubular portion of the die 76 into engagement with the pad in the closure cap and the punch positioning the severed lining disk against the heated pin for adhesion thereto, as shown in Figure 13.

To effect adhesion of the severed lining to the sealing pad of the cap by the heat from the pad, pressure is applied to the severed lining before the cap is moved by the feed rack 27 away from the punch and die mechanism. This pressure is applied by a plunger 85 slidably mounted in the punch with the lower end arranged with a head 86 slidable in the enlargement 70 in the punch, the upward movement of the plunger being limited by the shoulder formed at the juncture of said head and punger abutting the shoulder formed at the enlargement of the punch bore. The head 86 is normally positioned within the punch head 70, as shown in Figures 10, 12 and 13 by a spring 87 coiled about the plunger and confined between the punch nut 75 and a head 88 fixed to the end of the plunger. During the positioning of the severed lining in the cap by the punch and die, the plunger is actuated to impinge the lining against the cap pad, as shown in Figure 14, by a vertical reciprocatory kicker in the form of a plunger 89 slidably mounted in sleeve portions 90 and 92 extending parallelly from a standard 91 (Figures 10, 12 and 13) mounted on the table T at the side of the cap supporting rails 24. The kicker extends through perforation in the table and has a bifurcated head 93 fixed to the end rotatably carrying a roller 94 between the bifurcation legs to follow a cam 95 fixed to the drive shaft 22 to impart movement to the kicker in an upward direction just prior to the return movement of the slide 63, as shown in Figure 14. The kicker 89 is urged in a downward direction to cause the roller to follow the cam 95 by a spring 96 coiled about the kicker plunger 89 and confined between the sleeve 90 and a collar 97 fastened to the kicker above the sleeve 92. The kicker plunger 89 actuated the plunger 85 to impinge the head 86 of said plunger against the lining, as shown in Figures 14 and 15, through the engagement of a lever 98 pivotally mounted intermediate the ends thereof between the bifurcation legs of a head 99 fixed to the end of a post 100 fixed in and extending upward from the slide 63 and positioned between the punch mechanism and kicker plunger 89, one end of the lever engaging between the bifurcation legs of and pivotally connected to the head 88 of plunger 85, and the opposite end extending over an adjustable abutment 101, in the form of a set screw threaded in the end of the kicker plunger 89, the lever engaging said abutment at the end of the downward movement of the slide 63 of the punch and die engaging the pad in the cap, as shown in Figure 13. In said position the kicker is moved upward by the cam 95 engaging the abutment 101 with and rocking the lever 98 and moving the plunger 85 against the tension of spring 87 and impinging the plunger head 86 under pressure against the lining in a cap, as shown in Figure 14, and maintaining the plunger 85 in such position during the receding movement of the punch and die, as shown in Figure 15, the plunger head 86 also serving to strip the lining from the punch and die. The plunger head 86 recedes to its normal position at the commencement of the advancement of the caps on the rails 24 by the movement of the feed rack 27 in the direction toward the punch and die mechanism by the change of position of the roller 94 relative to the cam 95 effected by the rotation of the cam and the return of the kicker plunger 89 under the influence of

the spring 96 and of the plunger 85 by the force of the spring 87.

The web W of lining material is fed to the punch and die mechanism along the support and guide 79 from a roll R of such web carried on a reel 103 rotatably supported by an arm 104 of a bracket 105 fixed to and extending from the table T. The web is fed from the web roll to the web support and guide 79 of the punch and die mechanism below a roller 106 rotatably supported between parallel side guide flanges 107 of said guide which terminate at the die housing 81 and continues at the opposite side of said housing. The web is delivered from below the roller 106 to the punch and die mechanism through the guide slots 81′ of the die housing and enlargements 77, 77′ of the die 76 and its carrier 76′.

The web is intermittently fed or drawn across the support and guide 79 relative to the punch and die mechanism by a pair of superposed rollers 108 and 109 fixed to rotatable shafts 110 and 111 and positively driven one from the other by meshing gears 112 and 113 fixed on the end of each of the shafts 110 and 111. The roller 109 is mounted between the legs of a U-shaped standard 114 fixed to and projecting up from the table T with the legs arranged with bifurcations 115 terminating above the mounting of the roller 109 and having ribs 116 extending from the opposed faces for the slidable engagement of grooves or slideways 117 arranged adjacent the marginal edges of a block 118 having a bifurcation 119 at the lower end with the bifurcation legs perforated for the mounting of the shaft of roller 108, the upper end of the block being weighted and flared outwardly to form a hand grip for the manipulating of the block to move the roller 108 out of and into engagement with the roller 109. The weight of the block maintains the gear 112 in mesh with gear 113 and the roller carried thereby in contact with roller 109. The rollers 108, 109 are rotated intermittently and during the period of rest of the punch and die mechanism and simultaneously with the feeding of the cops on the supporting rails 24, by a gear 120 fixed on a shaft 121 rotatable in lateral extensions 122 of the standard 114 and held against movement by a split collar 123 embracing and frictionally engaging the periphery of a disk 123′ (Figure 8) with a predetermined force by a screw to draw the collar sections to the disk, and thus preventing overthrow and backlash of the feeding rollers. The collar is anchored on the standard 114 by a pin, as shown in Figures 2 and 8. The gear 120 meshes with the roller gear 113 and is intermittently rotated by the rotation of a ratchet wheel 124 fixed on the shaft 121 and intermittently rotated by a pawl 126 pivotally carried by a rocker, in the form of a plate 125 loosely mounted on the shaft 121 between the gear 120 and ratchet wheel 124, the pawl 126 being urged into engagement with the ratchet wheel by a spring 127. The rocker plate is rocked or reciprocated by a link 128 pivotally connected to an extension of the plate and to one end of a lever 129 pivotally mounted intermediate the ends thereof in a bifurcated bracket 130 fixed to and extending from the table T. The opposite end of the lever is arranged with an elongated slot 131 for the adjustable engagement of a bolt carried at one end of a rod 132, the opposite end of the rod being connected to a strap 133 loosely embracing an eccentric 134 fixed to the drive shaft 22, whereby reciprocatory movement is imparted to the rod 132 and through the lever and link connection thereof with the rocker plate actuating the rocker and as it is moved in one direction engaging the pawl and ratchet wheel and rotating said wheel and gear 120 a predetermined distance, which distance may be varied by the adjustment of the pin and slot connection 131 between the rod 132 and lever 129, the distance being determined by the length of the web desired to be fed measured by the diameter of the disk.

To prevent the breaking of the web due to the pull thereon by the feeding rollers 108, 109 from the reel 103, tensioning and supplementary feeding means are provided to feed the web from the web reel 103 to the punch and die mechanism, with a slack portion of the web W interposed between the web roll and the punch and die mechanism, said means comprising a flanged roller 135 rotatably mounted on an extension 136 of the bracket 105 extending at substantially a right angle to the reel carrier extension 104, about which roller the web is led from the web roll and guided to a flanged feed roller 137 fixed to one end of a shaft 138 rotatably supported by bracket 105 at the juncture of the extensions 104 and 136, the shaft 138 extending to the opposite side of the bracket 105 through a boss thereon and has a sprocket wheel 139 fixed thereto for operatively connecting and driving the roller 137 from the driving means for the feed rollers 108, 109, to intermittently rotate said roller 137 synchronously with the rollers 108, 109. This connection comprises a sprocket chain 140 engaging the sprocket wheel 139 and a sprocket wheel 141 fixed to a shaft 142 rotatably mounted in a bracket 143 supported on the table T adjacent to the standard 114, and operatively connected with the drive gear 120 by a gear 144 on shaft 142 meshing with a gear 145 rotatably supported by the bracket 143 and meshing with the roller gear 113, as shown in Figures 19 and 20. The web is maintained in contact with the roller 137 by the weight of an idler roller 146 rotatably carried to engage the web between the flanges of roller 137 adjacent one end of a lever 147 pivotally mounted at the opposite end on the

bracket 105 and arranged to yieldingly urge the roller 146 into engagement with the web on roller 137 by a spring 148 coiled about the mounting of the lever with one end fixed to the arm 105 by bending the said end to engage under a flange of said arm and the opposite end of the spring bent laterally and engaged over the upper edge of the lever, as shown in Figure 19. From the roller 137 the web is led to the guide and support 79 under the roller 106 with the slack portion interposed, the roller 106 being arranged relative to the feeding rollers 108, 109 so that the web will extend in a substantially horizontal plane during the severing of a lining therefrom to assure an even severing of the lining.

To prevent the feeding of the web relative to the punch and die mechanism with a consequent waste thereof with no cap positioned on the supporting rails 24 in register with the punch and die mechanism, means are provided to hold the pawl out of engagement with the ratchet wheel upon the actuation of the pawl carrying rocker 125 and thereby prevent the rotation of the gears 120, 113 and 112, said means comprising a lever or bar 149 pivotally mounted intermediate the ends on the standard 114, one end of the lever extending over the cap rails 24 and being weighted, as at 150, to urge said end of the lever in a downward direction, and having a member 151 fixed thereto to extend in superposed relation to the cap engaging space between the rails 24 and having a finger extended into an indent 152 in the edge of the web guide 79 to be engaged by the flange of the caps to lift the weighted lever end 150 thereby rocking the lever to depress the opposite end, which is of curved formation, as at 153 in Figure 6, and engages below a pin 154 extending laterally from the pawl 126, this movement of the lever permitting the pawl to engage the ratchet wheel and actuation thereof by the rocking of the pawl carrying rocker 125 and the actuation of the feed rollers 108, 109 through the gears 120, 113 and 112. When there is no cap on the rails 24 below the finger of member 151 the member 151 will move by the weight of the end 150 downward between the rails 24, it being limited in this movement by an adjustable abutment in the form of a set screw 155 threaded into a vertical perforation in the end 150 to abut one of the guide edges 44, and this downward movement of the lever end 150 will move lever end 153 upward and through the engagement of said end with the pawl pin 154 move the pawl 126 out of engagement with the ratchet wheel 124, thereby stopping the rotation of the rollers 108, 109 through the breaking of the connection between the pawl carrying rocker 125 and gear 120.

To prevent the accumulation of the adhesive of the web on roller 109, which may be rendered somewhat viscous on the remaining portion of the web from which linings have been severed due to heat created by the operation of the punch and die mechanism, a scrapper in the form of a curved plate 156 is carried by angle brackets fixed to the standard extensions 122, one edge of said plate being arranged in scraping relation to the roller 109 and the other end extending to a lower plane for the disposal of the accumulation of the adhesive thereon by gravity.

To facilitate the threading of the web to the web feeding means a hand knob 110′ is fixed to the extended end of the roller carrying shaft 110, and whereby web feeding movement may be imparted to the feed rollers 108, 109.

To assure an intimate adhesion of the severed linings positioned on the pads P the caps are advanced from the punch and die mechanism by the reciprocation of the feed rack 27 to means to successively subject the linings assembled on the pads in caps to heat and pressure. This means comprises a pair of heated plungers slidably mounted in the arm 68 of the slide 63 in parallel relation to the punch and die and moved by the movement of the slide into and out of engagement with caps on the supporting rails 24 positioned in alinement with said plungers. Each of the plungers comprises a tubular shank 157 slidably mounted in a bore in the slide arm 68, the end of the shank extending above the member 68 having an annular enlargement 158 to abut the member 68 to limit the downward movement of the shank. The lower end of the shank carries a head in the form of a plug 159 of heat conducting material and of a diameter equal to the diameter of the lining, said head being threaded into the bore of the shank and carrying an electric heating unit to heat the same, comprising a carrier 160 of electric insulating and heat conducting material having embedded therein an electric resistance wire 161 connected to a source of electricity by conductors 162 supported by a terminal plug 163 of insulating material inserted in the bore of the shank at the upper end with an annular enlargement thereof abutting the end of the shank and enclosed in a cap member 164 threaded onto the end of the shank extending beyond the enlargement 158, the cap having an opening therethrough for the passage of the conductors leading from a recess 165 to accommodate the plug 163 and the electrical connections of the conductors therewith. The head 159 is maintained with a yielding pressure against a lining positioned in a cap during the downward movement of the slide 63 by a spring 167 coiled about the shank and confined between a collar 166 fixed on the lower end of the shank and the slide arm 68, the collar 166 also limiting the movement of the head 159 toward the cap on the rails 24 by engaging

with the rails 44 to retain the caps on the supporting rails 24. By this arrangement sufficient force is applied to the lining without forcing the cap through the bevelled edges 26 of the rails 24 and assure an intimate adhesion of the linings to the pads. Both of the plungers are of similar structure and operate simultaneously upon different caps during the period of rest of the caps on the rails 24.

To maintain an intimate adhesion of the linings to the pads the caps are advanced from the heating plungers to means to place them under pressure as they cool. This means comprises a disk 168 fixed on a shaft 169 rotatably supported at one end in a bearing sleeve 170 fixed to the table T and in a hub portion of a bracket 171 mounted on the table T to extend upward and overhang the disk 168. The shaft 169 is rotated through a gear 172 fixed to the shaft and meshing with a pinion 173 fixed to one end of a shaft 173′ rotatably supported in a bearing sleeve 174 fixed to and extending below the table T, a bevel gear 175 on the lower end of the shaft meshing with a bevel pinion 176 fixed to the drive shaft 22. The upper surface of the table is in a plane with the cap supporting rails 24, and the caps are delivered from said rails to the table by the feed rack 27. To place the linings assembled on pads on the table under pressure to maintain an intimate adhesion of the linings when the caps are cooled a series of plungers 177 are circumferentially spaced around the table, said plungers being slidably carried by a pair of superposed ring members 178, 179 fixed in spaced relation on the shaft 169 superposed to the table 168. The plungers are urged into engagement with the table by springs 182 coiled about the plungers with one end fixed to the plungers and the opposite end abutting against the upper ring member 178. The ratio of the gearing 172 to 176 is such so as to rotate the table a distance equal to the spacing of the plungers 177 upon each cap feeding movement of the feed rack 27 and thus deliver caps from the supporting rails 24 to the successive plungers 177.

To release the plungers from the caps on the table and permit the positioning of caps on the table 168 in interposed relation to the plungers, each plunger carries a roller on a stud fixed in the plunger above the ring member 178 to extend laterally of the periphery of said ring member 178, as shown at 181, which rollers ride up an arcuate cam member 180 supported upon the table T by the rotation of the plungers with the table 168, thus moving the plungers successively away from the table against the tension of the springs 182 and maintaining them in such position until they pass the delivery end of the rails 24 and a cap has been delivered into the table and positioned relative to a plunger when the plunger rollers ride off from the cam member and the plunger engages a cap on the table positioned relative thereto. As the plunger rollers 181 ride up the cam 180 and the plungers are moved out of engagement with caps on the table such caps by the rotation of the table engage an abutment (not shown) intersecting the path of travel of the caps and arranged to direct the caps from the table to a chute 183.

It will be obvious that various modifications may be made in the construction and arrangement of parts without departing from the scope of the invention, and that portions of the invention may be used without others and come within the scope of the invention.

Having thus described my invention, I claim:

1. In apparatus for assembling and securing impervious linings to pads in closure caps, punch and die mechanism having a diameter less than the pads, means to intermittently feed and position caps to the punch and die mechanism and pass the caps through a zone having an elevated temperature, means to feed a web of impervious material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into lining disks of less diameter than the pads and positioned by the punch in the heated caps with the adhesive surface opposed to the pads to effect a fusion of the adhesive and uniting the linings to the pads, and means to guide and position the linings centrally of the cap pads.

2. In apparatus for assembling and securing impervious linings to pads in closure caps, punch and die mechanism, a cap support, means to intermittently feed and position caps on the support relative to the punch and die mechanism and to pass the caps through a zone having an elevated temperature, means to feed a web of impervious material having an adhesive surface normally non-viscous from a roll of such web to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps to effect an adhesion between the linings and the pads, and said feeding means normally inoperative to feed the web and adapted to be rendered operative by a cap on the support to be positioned relative to the punch and die mechanism upon the successive actuation of the cap feeding means.

3. In apparatus for assembling and securing impervious linings in closure caps, punch and die mechanism, means to intermittently feed and position caps relative to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the same as they are fed to the punch and die mechanism, means to feed a web of impervious material having an adhesive surface normally non-viscous to the punch and

die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps and the adhesive surface thereof rendered viscous by the heated cap, and means to which the caps with the impervious linings assembled therein are delivered from the punch and die mechanism to place the linings under heat and pressure to effect intimate adhesion between the linings and the caps.

4. Apparatus for assembling and securing impervious linings in closure caps as claimed in claim 3, wherein the die is arranged to guide and the punch to position the linings severed from the web centrally of the caps.

5. In apparatus for assembling and securing impervious linings in closure caps, reciprocatory punch and die mechanism, means to intermittently feed and position caps to the punch and die mechanism, means to feed a web of the lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps, means to which the caps with the linings are delivered from the punch and die mechanism to place the linings under heat and pressure to effect an intimate adhesion of the linings in the caps, and means to which the caps are delivered from said latter means to place the same under pressure to maintain adhesion between the linings and caps during the cooling period.

6. In apparatus for assembling and securing linings in closure caps, reciprocatory punch and die mechanism, means to intermittently feed and position caps to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the same, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings, the lining severed from the web being positioned by the punch in a cap, and the die being arranged to engage in the cap and guide the lining as it is positioned by the punch in the cap, means to which the caps with the linings are delivered from the punch and die mechanism to place the linings in the caps under heat and pressure to effect an intimate adhesion thereof, and means to which the caps are delivered from said latter means to place the same under pressure during the cooling to effect and maintain adhesion between the linings and the caps.

7. In apparatus for assembling and securing linings in closure caps punch and die mechanism, means to intermittently feed and position the caps to the punch and die mechanism, heating means to produce a zone having an elevated temperature to heat the caps as they are fed to the punch and die mechanism, said heating means being adjustably supported superposed to the path of travel of the caps, means to feed a web of lining material having an adhesive surface to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps to effect an adhesion of the linings to the caps, and means to render the apparatus operative and inoperative and adapted when actuated to render the apparatus operative to position the heating means superposed to the travel of the caps and move the heating means to a position remote to the travel of the caps when said means is actuated to render the apparatus inoperative.

8. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps below and intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said support relative to the punch and die mechanism and pass the caps through a zone having an elevated temperature as they are fed to the punch and die mechanism to heat the pads, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism, and means operative synchronously with the actuation of the punch and die mechanism to which the caps with linings are delivered from the punch and die mechanism to place the linings under heat and pressure to render the same viscous and effect an adhesion between the linings and the pads.

9. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps arranged below and intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said supporting means relative to the punch and die mechanism and pass the caps as they are fed to the punch and die mechanism through a zone having an elevated temperature to heat the pads, means intermittently operative to successively deliver the caps relative to said feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect an infusion of the adhesive and adhesion between the linings and the pads.

10. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps, means to intermittently feed and position caps on said support relative to the punch and die mechansm and pass the caps as they are fed to the punch and die mechanism through a zone having an elevated temperature to heat the pads, means operative in sequence with

the actuation of the cap feeding and positioning means to deliver the caps to the support relative to said feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect an infusion of the adhesive and adhesion between the linings and the pads.

11. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, means to support caps in alinement with the punch and die mechanism, means to intermittently feed and position caps on said supporting means to the punch and die mechanism, means to supply the caps to the supporting means relative to said feeding and positioning means, an electric heating unit intermediate the punch and die mechanism and the cap supplying means and superposed to the travel of the caps for producing an elevated temperature to heat the pads in the caps, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

12. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, means to support caps in alinement with the punch and die mechanism, means to intermittently feed and position caps on said supporting means to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the pads, means to supply caps to the supporting means relative to said feeding and positioning means comprising a rotatable disk to support and aline caps thereon with the supporting means and a finger reciprocated by the actuation of the cap feeding and positioning means to deliver caps from the disk to the supporting means relative to the feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps relative to the pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

13. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said support to the punch and die mechanism, an adjustable electric heating unit to be positioned to extend in superposed relation to the pads in the travel of the caps on the support as they are fed to the punch and die mechanism to heat the pads and be adjusted to a position remote to the caps on the support, and means to feed a web of lining material having an adhesive surface normally non-viscous from a roll of such material to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the heated pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

14. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material to the punch and die mechanism to be severed into linings and positioned centrally in the caps by the punch and die mechansm, a support and guide for the web interposed between the punch and die mechanism and cap supporting means to one end of which the web is delivered from a web roll with a slack portion between the web roll and support and guide, and intermittently operative means arranged at the opposite end of said support and guide to draw the web across the support and guide relative to the punch and die mechanism in the inoperative position thereof.

15. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material from a roll of such web to the punch and die mechanism to be severed into linings and the linings positioned in the caps by the punch and die mechanism comprising a support and guide for the web to the punch and die mechanism, intermittently operative means arranged at one end of the support and guide to draw the web across the same, and intermittently operative means to deliver the web from the web roll to the opposite end of the support and guide with a slack portion of the web interposed between said latter means and the support and guide, the web drawing and delivering means being actuated in synchronism with each other.

16. Apparatus for assembling linings in closure caps as claimed in claim 15, wherein the intermittently operative means to draw the web across the support and guide comprises a pair of rollers between which the web is engaged, a ratchet wheel operatively connected with said rollers, a rocker pivotally supported on the axis of the ratchet wheel, a pawl pivotally carried by said rocker to engage the ratchet wheel, and means to oscillate the rocker.

17. Apparatus for assembling linings in closure caps as claimed in claim 15, wherein the means to deliver the web from the web roll to the support and guide comprises an intermittently rotated roller, and rollers to guide the web from the web roll to and main-

tain it in contact with said intermittently rotated roller.

18. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material from a roll of such web to the punch and die mechanism to be severed into linings and the linings positioned in the caps by the punch and die mechanism comprising a support and guide for the web to the punch and die mechanism, a pair of rollers arranged at one end of the support and guide between which the web is engaged and operative to draw the web across the support and guide, a ratchet wheel operatively connected with said rollers, a rocker carrying a pawl to cooperate with the ratchet wheel to effect intermittent rotation thereof and intermittent feeding movements of the rollers, a roller arranged at the opposite end of the support and guide to deliver the web from the web roll, said roller being operatively connected with and intermittently rotated from the ratchet wheel, and rollers to guide the web from the web roll and maintain the web in contact with the latter feed roller.

19. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a cap support, means to feed and position caps on the support relative to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of and with the adhesive surface abutting the pads by the punch and die mechanism, and electrically heated plungers to which the caps are successively delivered from the punch and die mechanism to place the linings under heat and pressure and effect an intimate adhesion between the linings and the pads.

20. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a cap support, means to feed and position caps on the support relative to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of and with the adhesive surface abutting the pads by the punch and die mechanism, electrically heated plungers to which the caps are successively delivered from the punch and die mechanism to place the linings under heat and pressure and effect an intimate adhesion between the linings and the pads, and means to which the caps with the linings are delivered from the heated plungers to place the pads and linings under pressure during the cooling thereof.

21. In apparatus for assembling linings in closure caps, a cap support, punch and die mechanism superposed to the cap support to sever linings from a web of lining material having an adhesive surface and position the severed linings in a cap on the cap support comprising a reciprocatory punch and a tubular die slidable on and reciprocatory with the punch and one movable relative to the other, said die being arranged to engage within the cap on the support and guide a severed lining as it is positioned by the punch in the cap.

22. In apparatus for assembling linings in closure caps as claimed in claim 21, means to engage and hold the lining to the cap and strip the lining from the punch and die as they recede from the cap.

23. In apparatus for assembling linings in closure caps as claimed in claim 21, wherein the punch is tubular, a plunger slidable in the punch operative to engage and hold the lining to the cap and strip the lining from the punch and die as they recede from the cap.

24. In apparatus for assembling linings in closure caps, a cap support, means to sever a lining from a web and position the same in a cap on the support comprising a die arranged with a support for the web from which the linings are severed, said die being slidably supported in superposed relation to the cap support and having a tubular portion opposed to the cap support to engage within the cap, said die being normally urged in a direction from the cap support, a punch slidable in the die to sever the lining from the web, and means to actuate said punch and die to engage the tubular portion of the die within the cap, sever the lining from the web by the punch and guide the severed lining through the tubular portion of the die to position in the cap.

25. In apparatus for assembling linings in closure caps as claimed in claim 24, means operative in sequence with the operation of the punch and die to engage the lining in the cap and strip the lining from the punch and die as they recede from the cap.

26. In apparatus for assembling linings in closure caps as claimed in claim 24, a plunger slidably mounted in the punch and normally urged to predetermined position within the punch, and means to actuate and engage said plunger with the lining positioned in the cap by the punch to hold the lining in the cap and strip the same from the punch and die as they recede from the cap.

27. In apparatus for assembling and securing linings to sealing pads in closure caps, punch and die mechanism, a cap support, means to intermittently feed and position caps on the support relative to the punch and die mechanism, means to heat the cap pads as they are fed to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism for

the severing of linings from the web and positioning of the linings relative to the heated pads in the caps by the punch and die mechanism, and means carried by the punch to forcibly impinge the lining against the heated cap pad and effect adhesion of the lining to the cap pad, said means being actuated in sequence to the positioning of the severed lining relative to the cap pad by the punch and die mechanism.

28. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

29. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

30. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

Signed at borough of Brooklyn, in the county of Kings and State of New York, this 18th day of November, A. D. 1929.

JOHN A. JOHNSON.

[fols. 767-769] PLAINTIFF'S EXHIBIT No. 15

596

Aug. 8, 1933. B. COHN 1,921,808

METHOD OF MAKING CLOSURES

Filed July 20, 1932

Fig. 1.



Fig. 2.

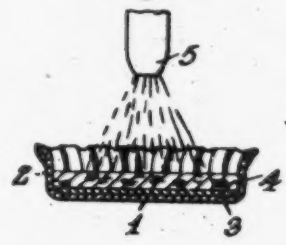


Fig. 3.

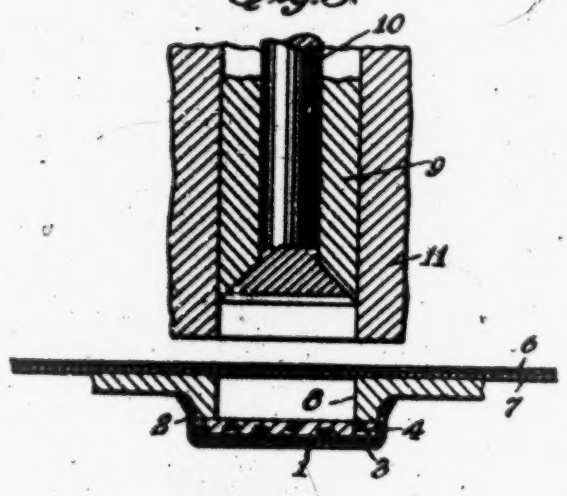


Fig. 4.

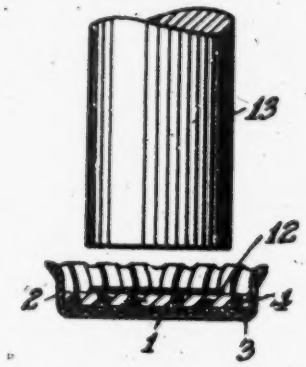


Fig. 5.

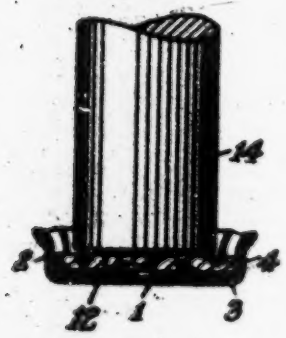
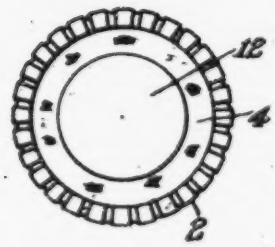


Fig. 6.



Benno Cohn
INVENTOR

BY Robert H. Gillgore
ATTORNEY

Patented Aug. 8, 1933 1,921,808

UNITED STATES PATENT OFFICE

1,921,808

METHOD OF MAKING CLOSURES

Benno Cohn, Brooklyn, N. Y., assignor to Ferdinand Gutmann & Co., Brooklyn, N. Y., a Corporation of New York

Application July 20, 1932. Serial No. 623,476

3 Claims. (Cl. 113—88)

My invention relates to an improved method of manufacturing container closures having a "spot" or disk of metal foil or other suitable material centrally located on the exposed face of the sealing gasket within the closure and it is my object to practice an economical method by which such "spots" are cut cold from the ribbon or strip from which they are punched and are firmly united to the gasket.

The "spots" or disks of metal or other material, are, in practice punched or cut from a strip or ribbon which is faced on one side with a suitable adhesive, such as gutta-percha, which is hard enough to handle conveniently at ordinary temperatures but which becomes tacky when heated. Heretofore a completed cap has been fed beneath a heated cutting die which has punched out the "spot" or disk and forced it against the gasket, the heat of the die softening the adhesive and causing the "spot" and gasket to stick together. The use of a hot die melted the adhesive and gummed the cutting die causing it to stick and even break when the accumulation of adhesive became too great. Moreover one operation was required to assemble the gasket in the shell and a subsequent operation was required to apply the "spot" to the gasket.

By my method the strip or ribbon of foil or other material is cut or punched by a cold die and pressed against a heated gasket so that there is no danger of the cutting die accumulating adhesive which would render it inoperative. Furthermore the assembly of shell, gasket and "spot" is accomplished in one operation. This is more economical and better, and avoids marring the appearance of the cap by excessive handling and heating. My new method has further advantages which will be set forth herein.

In the drawing I have shown my invention in diagrammatic, exaggerated form as the machines used in carrying it out are well known in the art. Fig. 1 is a sectional view of a cap with the adhesive and sealing gasket therein; Fig. 2 a sectional view of the cap of Fig. 1 passing under the heating flame; Fig. 3 a sectional view showing the cutting out and insertion of the "spot"; Fig. 4 a sectional view showing the operation of the smoothing plunger; Fig. 5 a sectional view of the cap under the plunger on the cooling ring of an assembly machine; and Fig. 6 a view of the inside of a finished cap.

For the purpose of illustrating my invention I have shown it applied to a crown cap but the method may be applied to any other type of closure.

The crown cap consists of a metal shell having a top 1 and a depending, corrugated skirt 2. An adhesive 3 is introduced into the shell, generally in the form of a disk of paper saturated with gums, which becomes adhesive under the action of heat. A sealing gasket 4, of cork or other material, is then placed in the shell on top of the adhesive. Heretofore, in making "spot" closures the assembled closure so far described has been subjected to heat and pressure to stick the gasket to the shell and the "spot" has been applied by a subsequent operation.

By my method the shell, adhesive and gasket are assembled but not firmly stuck together as they are in the completed crown under the old method referred to above. Depending on the adhesive used, the shell, with or without adhesive or gasket therein, may or may not be heated. The closure is then passed, gasket side up, under a flame 5 which heats the gasket. A series of heated plungers may be substituted for the flame. The closure next passes under a strip or ribbon of foil 6 (or any other suitable material) coated on its lower face with an adhesive 7. This strip or ribbon runs over a female die 8 having an opening the size and shape of the "spot" to be applied to the gasket, and an annular, depending flange adapted to enter the shell and center it. A cutting punch 9, with a knock-out plunger 10, is mounted in a sleeve 11 and is reciprocated over the female die 8 and on the down stroke the cutting punch 9 punches out a "spot" 12, which "spot" is pushed against the heated gasket 4 by the knock-out plunger 10. The cutting punch 9 and knock-out plunger 10 are cold so that the adhesive on the strip or ribbon will not be softened and adhere thereto. As the knock-out plunger 10 is necessarily smaller than the "spot" 12 the edges of the latter will not be firmly pressed against the gasket 4, but the "spot", as a whole, will be firmly enough united to the gasket 4 as not to be jarred out of position. Before the adhesive has cooled the closure, with the spot adhering to the gasket 4, is next passed under a smoothing plunger 13, which may be heated when desirable and which covers the entire gasket and presses the entire surface of the "spot" into contact with the gasket.

The closure finally passes under a plunger 14 on the cooling ring of the assembling machine where pressure is maintained on the completed closure until the adhesive 3 and the adhesive 7 have set.

In this way a single assembling machine may be used to assemble the various parts of a "spot"

closure instead of completely assembling the closure in one machine and then refeeding it through another machine which applies the "spot".

I claim:

1. The herein described method of making closures comprising the following steps in continuing succession: the application of a cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing pressure until said cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

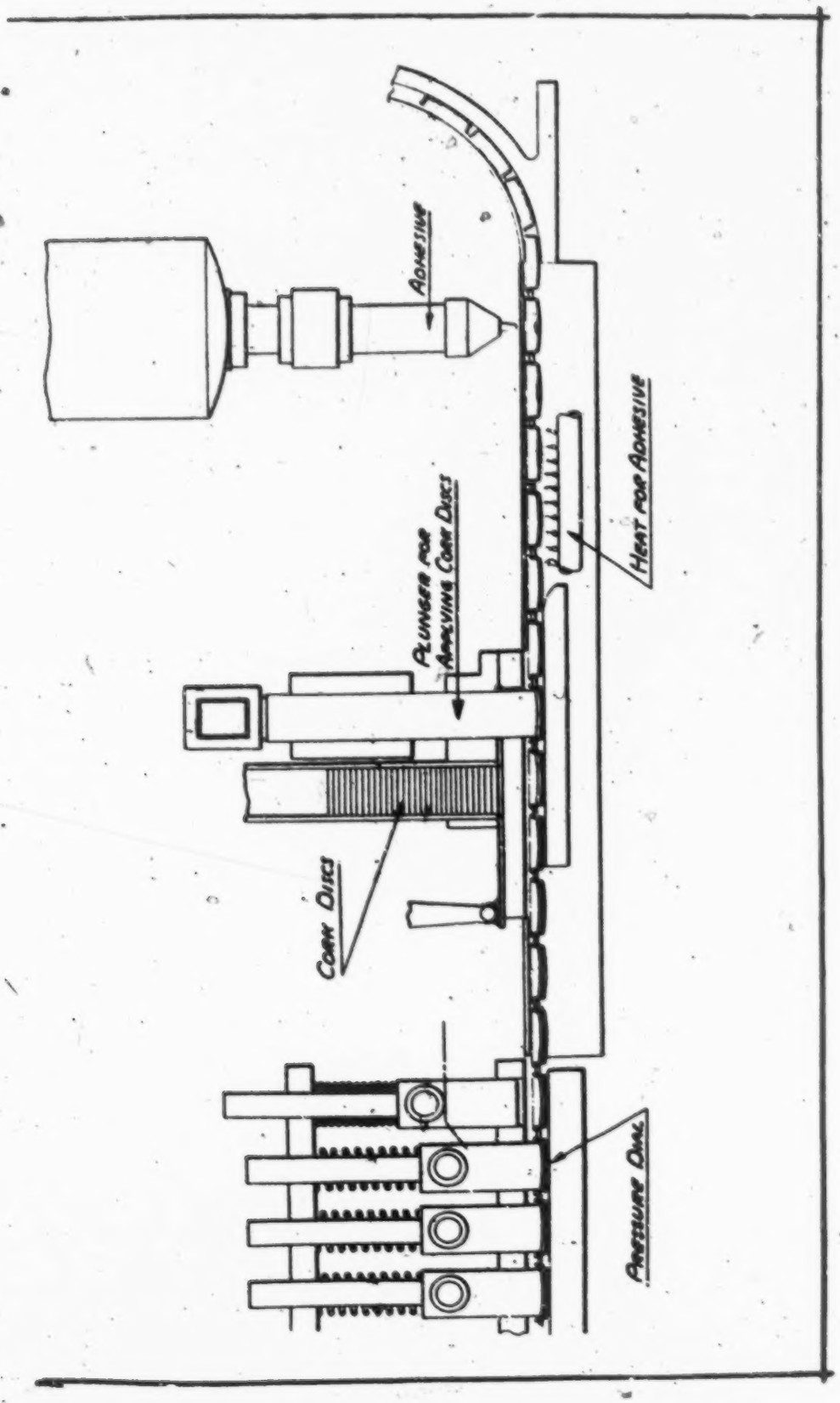
2. The herein described method of making closures comprising the following steps in continuing succession: the application of a fusible cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, the temporary application of heat throughout substantially the entire area of said disk, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing cold pressure until said cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

3. The herein described method of making closures comprising the following steps in continuing succession: the application of a fusible cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, the temporary application of heat and pressure throughout substantially the entire area of said disk, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing cold pressure until said cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

BENNO COHN.

599
770

PLAINTIFF'S EXHIBIT No. 16

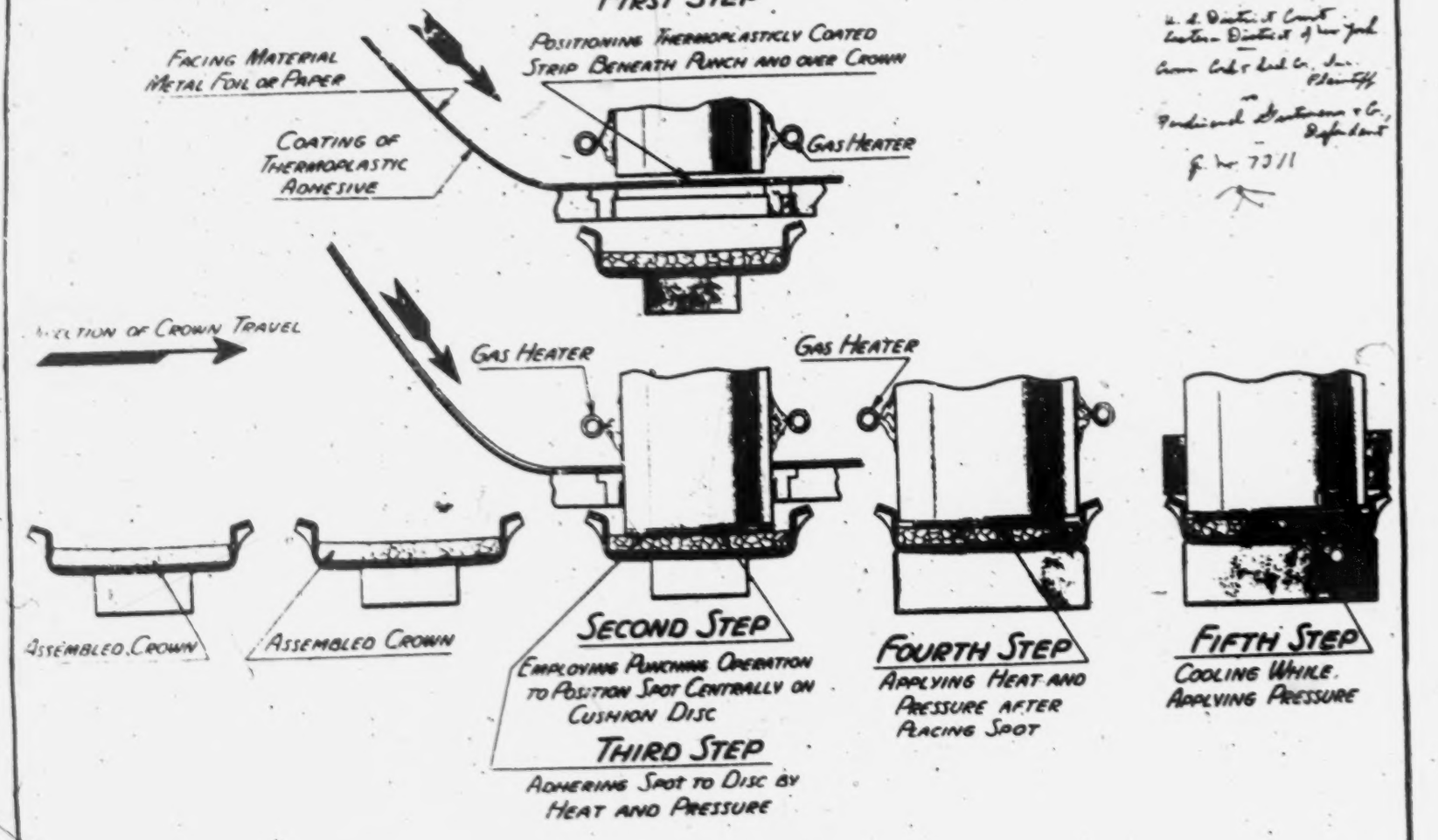


600
771

PLAINTIFF'S EXHIBIT NO. 17

EXH 21

U. S. District Court
Eastern District of New York
Crown Cork & Seal Co., Inc.
Plaintiff
vs.
Ferdinand Gutmann & Co.,
Defendant
No. 7211



WARTH METHOD

WARTH REISSUE No. 19117 - MARCH 20, 1934
ORIGINAL FILED JANUARY 7, 1927

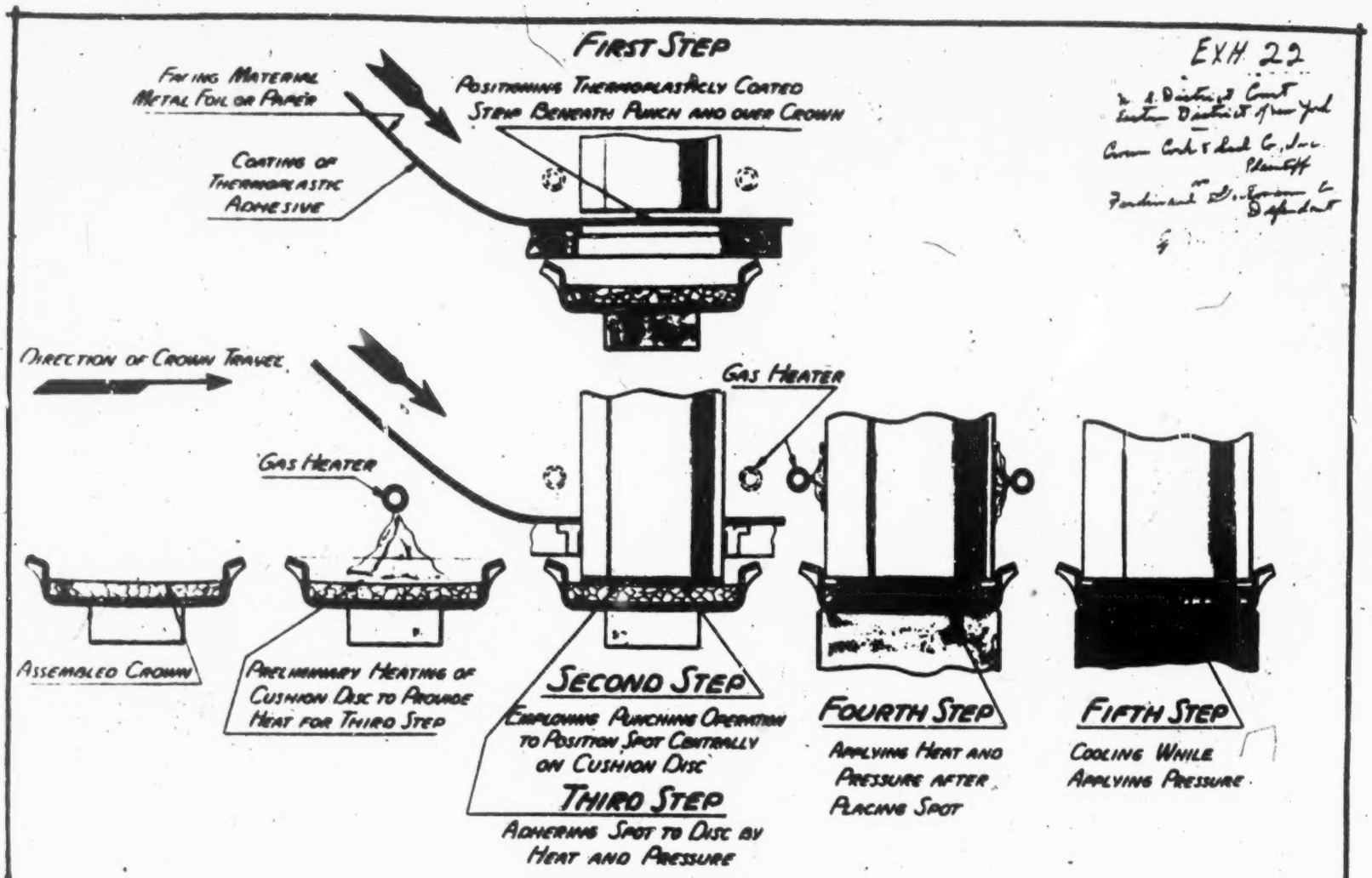
PLAINTIFF'S EXHIBIT NO. 21

601

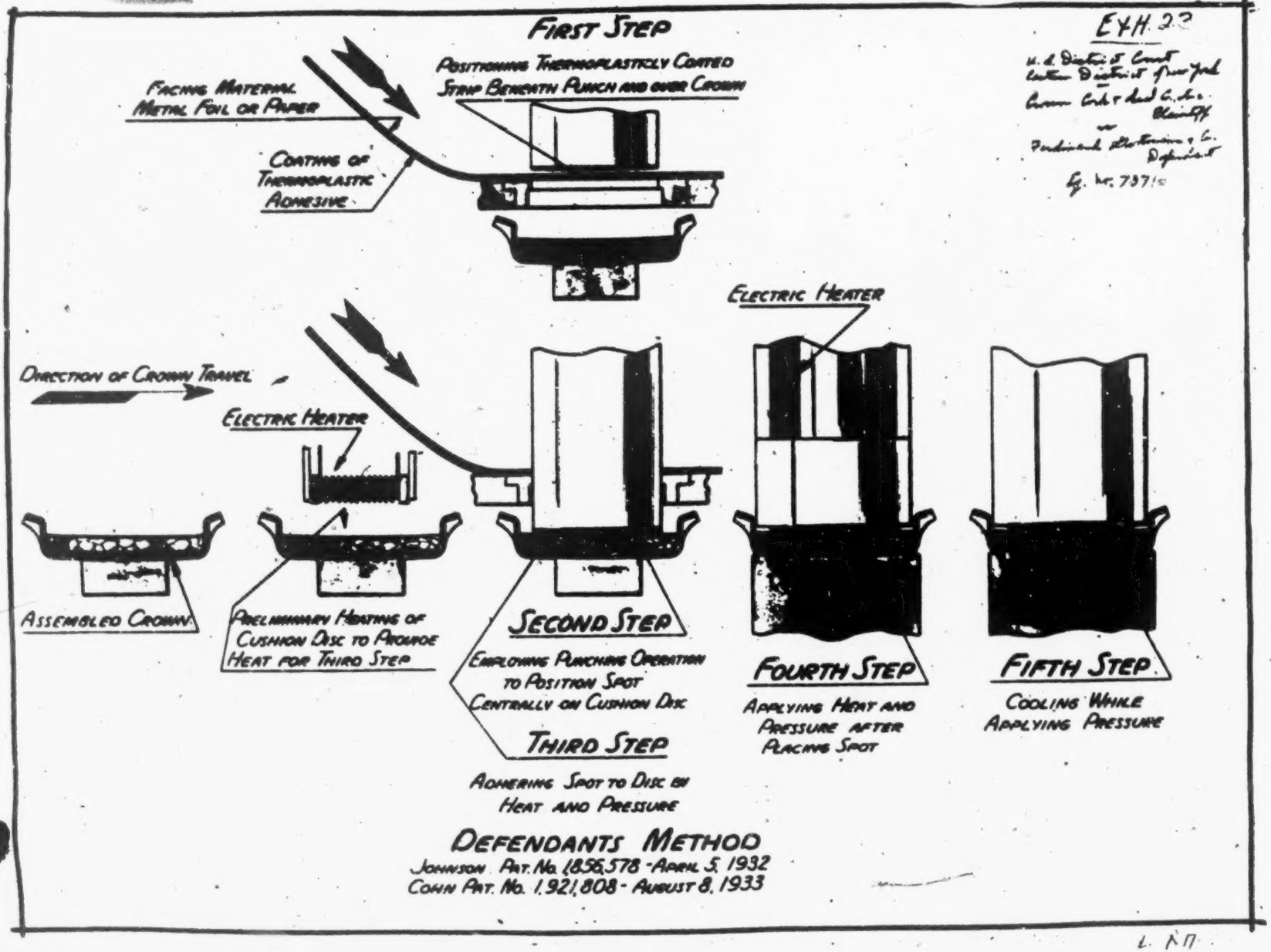
772

602
773
PLAINTIFF'S EXHIBIT NO. 22

EXH 22
In U.S. District Court
Eastern District of New York
Crown Cork & Seal Co., Inc.
Plaintiff
Continental Can Co. Inc.
Defendant



WARTH METHOD
WARTH PAT. No. 1957195 - JULY 17, 1934



EXH. 23

U. S. District Court
Eastern District of New York
Crown Cork & Seal Co. Inc.
Plaintiff
vs.
Ferdinand Gutmann & Co.
Defendant
Eq. Nr. 7971

PLAINTIFF'S EXHIBIT NO. 23

603
774

BLANK

PAGE

166

85796
U. S. D. C.

Vol. II

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1937

No. 72

CROWN CORK & SEAL COMPANY, INC.,
PETITIONER,

vs.

FERDINAND GUTMANN CO., INC.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

PETITION FOR CERTIORARI FILED MAY 20, 1937.

CERTIORARI GRANTED OCTOBER 11, 1937.

BLANK

PAGE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1937

No. 72

CROWN CORK & SEAL COMPANY, INC.,
PETITIONER,

vs.

FERDINAND GUTMANN CO., INC.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

VOL. II

INDEX.

	Original	Print
Record from D. C. U. S., Eastern New York—Continued.		
Statement of the evidence—Continued.		
Plaintiff's Exhibits—Continued:		
29—List showing production by plaintiff of paper center spot crowns from 1928 to 1934	775	605
30—List showing action of one or more typical purchasers from plaintiff from 1925 on..	776	605
31—List showing production by plaintiff of natural cork crowns from 1923 on.....	777	606
32—List showing production by plaintiff of natural cork crowns from 1917 to date..	778	606
33—List showing manufacture by plaintiff of all types of spot crowns, metal foil and paper spot	779	607
34—Record of typical users of metal foil spot crowns	779	607
35—Photograph showing Cuban machine of March 1, 1928.....	780	608

JUDD & DETWEILER (INC.), PRINTERS, WASHINGTON, D. C., OCTOBER 28, 1937.

	Original	Print
Record from D. C. U. S., Eastern New York—Continued.		
Statement of the evidence—Continued.		
Plaintiff's Exhibits—Continued:		
36—Letter dated October 5, 1928, from Johnson to Armstrong Cork Co.	781	609
37—Letters dated April 20 and April 24, 1928, between Johnson and Armstrong Cork Co.	782	609
38—Sketch by witness Cohn of machine used for producing Inecto caps	784	610
39—Bill by Gutmann to Inecto, dated May 13, 1925	785	611
40—Memorandum accompanying Plaintiff's Exhibit 39	785	611
41—Photograph of machines shown by McManus to Johnson	787	612
42—Photograph of machines shown by McManus to Johnson	788	612
43—Drawing made by witness Goebel showing sequence of steps in operation of machine developed under Goebel's supervision	789	612
44—Memorandum signed by W. F. Walker produced by witness Goebel	791	613
45—Photographs accompanying Exhibit 44	793	614
50—Appropriation No. 91,036 to cover money available for three aluminum spots to be applied to crown assembling machines, as per blue prints	796	614
51—Paper dated April 15, 1925, referring to scrapping of three slide machines	797	615
52—Photograph produced by witness Goebel showing machine used for combining two strips in one roll	799	616
53—Appropriation No. 91,092, covering combining machine	801	616
54—Appropriation No. 91,133, to cover building of additional gutta percha combined machine	803	616
55—Letter from Warth to Goebel	805	617
56—Paper signed by Goebel relating to invention of Warth on use of varnished paper for spot crowns	806	617
57—Letters dated June 29 and July 24, 1933, relating to equipment for coating	809	620
58—Letter from Warth to Goebel, dated July 11th	819	627
59—Contract tendered to Crown Cork & Seal Co., by Waldron Co.	820	628
60—Telegram dated August 3, 1933, wth reference to Exhibit 59	831	635
64—Keller patent No. 1,081,505	832	636
67—Letters addressed to Mr. Warth, headed M. Stover, with reference to experiments	845	649

ord from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.

	Original	Print
Plaintiff's Exhibits—Continued:		
68—Letter signed A. H. Warth, to J. W. Cleaveland of duPont Co., at Parlin, dated May 11, 1932	849	651
69—Letter dated May 9, 1933, from Warth to John Waldron Co.	850	652
70—Letter dated May 25, 1933, from Warth to John Waldron Co.	851	653
71—Letter dated June 23, 1933, from Warth to Waldron	852	653
72—Memorandum dated July 28, 1933, signed A. H. Warth	853	654
73—Letter dated August 30, 1920, from A. A. Eisenberg to A. H. Warth	854	655
74—Invoice dated April 13, 1927, from Crown Cork & Seal to Burroughs Bros. Co.	856	656
75—Letter dated June 30, 1927, from Warth to Burroughs Bros., and similar letter dated July 1, 1927	857	657
76—Two invoices dated August 17, and September 9, 1927, from Crown Cork & Seal Co. to Macomber Orchard Co.	859	658
80—Two photographs showing machine as altered within last week by witness Weisenburg	861	658
84—Letter to Gutmann by Crown Cork & Seal Co. offering license, dated March 21, 1933	863	659
85—Certified copy of certain papers from Interference No. 66,201	864	660
86—Certified copy of certain papers from Interference No. 60,878	871	664
87—Certified copy of file wrapper and contents of Johnson patent 1,852,578	888	676
Defendant's Exhibits:		
A—File wrapper and contents of Warth patent 1,899,783	946	734
B—File wrapper and contents of application of John Alberti for patent 1,199,026	1028	818
E—Affidavit made by Alberti for Crown Cork & Seal Company	1068	859
G—Bills dated November 1, and November 20, 1924, to Ferdinand Gutmann & Company by Nagy for dies	1071	860
H—Confirmation order of Beechnut Foil Co., dated December 31, 1924, for .0045 pure tin-foil, produced by witness Macauley	1072	860
I—Letter from Beechnut Foil Co., dated January 17, 1925, addressed to Ferdinand Gutmann & Co.	1076	861

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued: Original Print
J—Confirmation order dated January 17, 1925, from Beechnut Foil Co. to Ferdinand Gutmann & Co., and invoice of January 22, 1925, covering same 1077 862
K—Confirmation orders and invoices from Beechnut Foil Co. to Ferdinand Gutmann & Co. 1081 862
L—Letters dated January 24 and January 30, 1929, from Reynolds Metal Co..... 1083 863
M—Letter of March 12 from Reynolds Metal Co. to Ferdinand Gutmann Co..... 1086 865
N—Invoices from Reynolds Metal Co. to Ferdinand Gutmann Co..... 1087 866
O—Letters of February 8 and February 22, 1929, from Reynolds Metal Co. to Ferdinand Gutmann Co. 1098 877
P—Bill of August 31, 1928, from Johnson to Ferdinand Gutmann & Co..... 1101 880
Q—Four bills from September 17, 1928, to April 30, 1929, for assembling machines from Johnson to Gutmann..... 1102 881
R—Four bills from May 16, 1933, to June 19, 1933, from Johnson to Gutmann for machines 1104 883
S—Bill dated July 31, 1928, from Johnson to Gutmann for one tin-foil machine with hopper 1108 887
T—Orders from Crown Cork & Seal Co. to Johnson, and copies of invoices from Johnson to Crown Cork & Seal Co. for five machines, from March, 1929 to July 3, 1929 ..... 1109 888
U—Petition to institute public use proceedings filed by Johnson in interference proceedings under patent No. 1,852,578..... 1121 901
V—List of machines sold by Johnson like those in patent 1,852,578 ..... 1149 919
W—Page 19 of catalog of A. Johnson Machine Works 1154 922
X—Bill of Johnson to Gutmann, dated March 18, 1931 ..... 1155 922
Y—Agreement between Johnson and Crown Cork & Seal Co..... 1157 923
Z—Letter dated December 12, 1933, from Crown Cork & Seal Co. to Johnson..... 1161 925
AA—Assignment from Johnson to Crown Cork & Seal Co. 1162 925
CC—Invoices dated December 4 and December 11, 1924, from Gutmann to Inecto Co. 1164 926

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued: Original Print

DD—Invoice from Gutmann to Inecto, dated January 27, 1925 ..... 1166 926
EE—Invoice dated February 5, 1925, from Gutmann to Inecto 1167 926
FF—Invoice dated March 4, 1925, from Gutmann to Inecto 1168 926
GG—Invoice dated Feb. 19, 1925, from Gutmann to Inecto 1169 926
HH—Letter from Inecto to Gutmann, dated February 4, 1925 ..... 1170 927
II—Letter from Inecto to Gutmann, dated March 9, 1925 ..... 1171 927
JJ—Invoice from Gutmann to Inecto, dated March 26, 1925 ..... 1172 929
KK—Invoice from Gutmann to Inecto, dated March 26, 1925 ..... 1173 930
LL—Six invoices from Gutmann to Inecto, from March 27 to May 18, 1925 ..... 1174 931
MM—Letter from Gutmann to Inecto, dated Feb. 19, 1925 ..... 1180 937
NN—Letter from Bishop Gutta Percha Co. to Gutmann, dated January 6, 1925 ..... 1182 938
OO—Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 7, 1925 ..... 1183 939
PP—Invoice from Bishop Gutta Percha Co. to Gutmann, dated December 31, 1924 ..... 1183 939
QQ—Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 16, 1925 ..... 1184 940
RR—Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 30, 1925 ..... 1184 940
SS—Invoice from Bishop Gutta Percha Co. to Gutmann, dated February 11, 1925 ..... 1185 941
TT—Batch of invoices from Bishop Gutta Percha Co. to Gutmann, from March 23, 1928, to September 27, 1928 ..... 1186 942
UU—Invoice from Peters Bros. to Gutmann, dated April 10, 1929 ..... 1192 948
VV—Three invoices from Peters Bros. Rubber Co. to Gutmann, dated August 21, September 16 and November 1, 1929 ..... 1193 949
WW—Three invoices from Peters Bros. Rubber Co. to Gutmann, dated April 31, May 10 and May 15, 1930 ..... 1196 952
XX—Invoice from Peters Bros. Rubber Co. to Gutmann, dated May 25, 1929 ..... 1199 955
YY—Three invoices from Peters to Gutmann, dated January 15, April 28 and December 3, 1930 ..... 1200 956
ZZ—Four invoices from Peters to Gutmann, dated September 24, 1931 to November 1, 1932 ..... 1203 959

BLANK

PAGE

[fol. 775] PLAINTIFF'S EXHIBIT No. 29

May 13, 1935.

Gross Sales Glazed Paper Spots

All figures in units of one gross (144 crowns).

Year	Glazed Paper Spots	Soft Drink	Percentage of Paper Spot Crowns to Total Shipments of Soft Drink (Bev.) Crowns
1928	61,681	28,979,457	.0021
1929	710,522	27,139,391	.0262
1930	2,093,936	24,430,551	.0857
1931	1,964,314	20,614,040	.0953
1932	1,544,536	14,861,741	.1039
1933	1,417,320	17,148,333	.08265
1934	1,027,507	15,809,990	.0650
Three months Period 1935:			
	269,463	3,613,469	.07457

[fol. 776] PLAINTIFF'S EXHIBIT No. 30

May 17, 1935.

Record of Purchases of Several Important Customers Who Formerly Used Natural Cork Crowns and Who Adopted Glazed Paper Spot Crowns

All figures in units of one gross (144 crowns).

Year	Crowns Natural Cork	Crowns Glazed Paper Spots
1925	505,816	.....
1926	821,671	.....
1927	801,006	.....
1928	944,677	36,110
1929	478,168	637,783
1930	15,095	1,125,753
1931	408	701,270
1932	.....	526,372
1933	.....	389,369
1934	.....	272,301

[fol. 777] PLAINTIFF'S EXHIBIT No. 31

May 13, 1935.

Natural Cork and Glazed Paper Spot Crown Sales

All figures in units of one gross (144 crowns).

Year	Glazed Paper Spots	Natural Cork Non-Spot
1923	.....	3,798,163
1924	.....	3,426,137
1925	.....	4,993,638
1926	.....	4,749,878
1927	.....	3,264,053
1928	61,681	3,830,463
1929	710,522	2,835,685
1930	2,093,936	1,422,774
1931	1,964,314	861,482
1932	1,544,536	470,174
1933	1,417,320	749,487
1934	1,027,507	910,196

[fol. 778] PLAINTIFF'S EXHIBIT No. 32

May 13, 1935.

Natural Cork Crown Sales

All figures in units of one gross (144 crowns).

Year	Natural Cork Non-Spot
1917	17,298,539
1918	11,665,016
1919	8,468,137
1920	12,732,982
1921	3,160,784
1922	5,287,212
1923	3,798,163
1924	3,426,137
1925	4,993,638
1926	4,749,878
1927	3,264,053
1928	3,830,463
1929	2,835,685
1930	1,422,774
1931	861,482
1932	470,174
1933	749,487
1934	910,196

[fol. 779] PLAINTIFF'S EXHIBIT No. 33

May 13, 1935.

Spot Crown Sales

All figures in units of one gross (144 crowns).

Year	Tin Spots	Aluminum Spots	Glazed Paper Spots	Percentage of Paper Spot Crowns to Total Shipments Of Soft Drink (Bev.) Crowns	Total
1923....	168,480	.....	.....	.....	168,480
1924....	83,251	.....	.....	.....	83,251
1925....	101,680	.....	.....	.....	101,680
1926....	53,140	39,510	.....	.....	92,650
1927....	60,122	420,597	.....	.....	480,719
1928....	103,670	646,856	61,681	.0021	812,207
1929....	90,210	1,027,547	710,522	.0262	1,828,279
1930....	124,081	1,420,548	2,093,936	.0857	3,638,565
1931....	109,250	1,772,761	1,964,314	.0953	3,846,325
1932....	87,395	1,990,410	1,544,536	.1039	3,622,341
1933....	117,709	7,860,245	1,417,320	.08265	9,395,274
1934....	146,448	7,005,151	1,027,507	.0650	8,179,106
Three Months Period 1935					
	26,146	1,604,374	269,463	.07457	1,899,983

PLAINTIFF'S EXHIBIT No. 34

May 17, 1935.

Record of Purchases of Several Important Customers Who Formerly Used Natural Cork Crowns and Who Adopted Aluminum Spot Crowns

All figures in units of one gross (144 crowns).

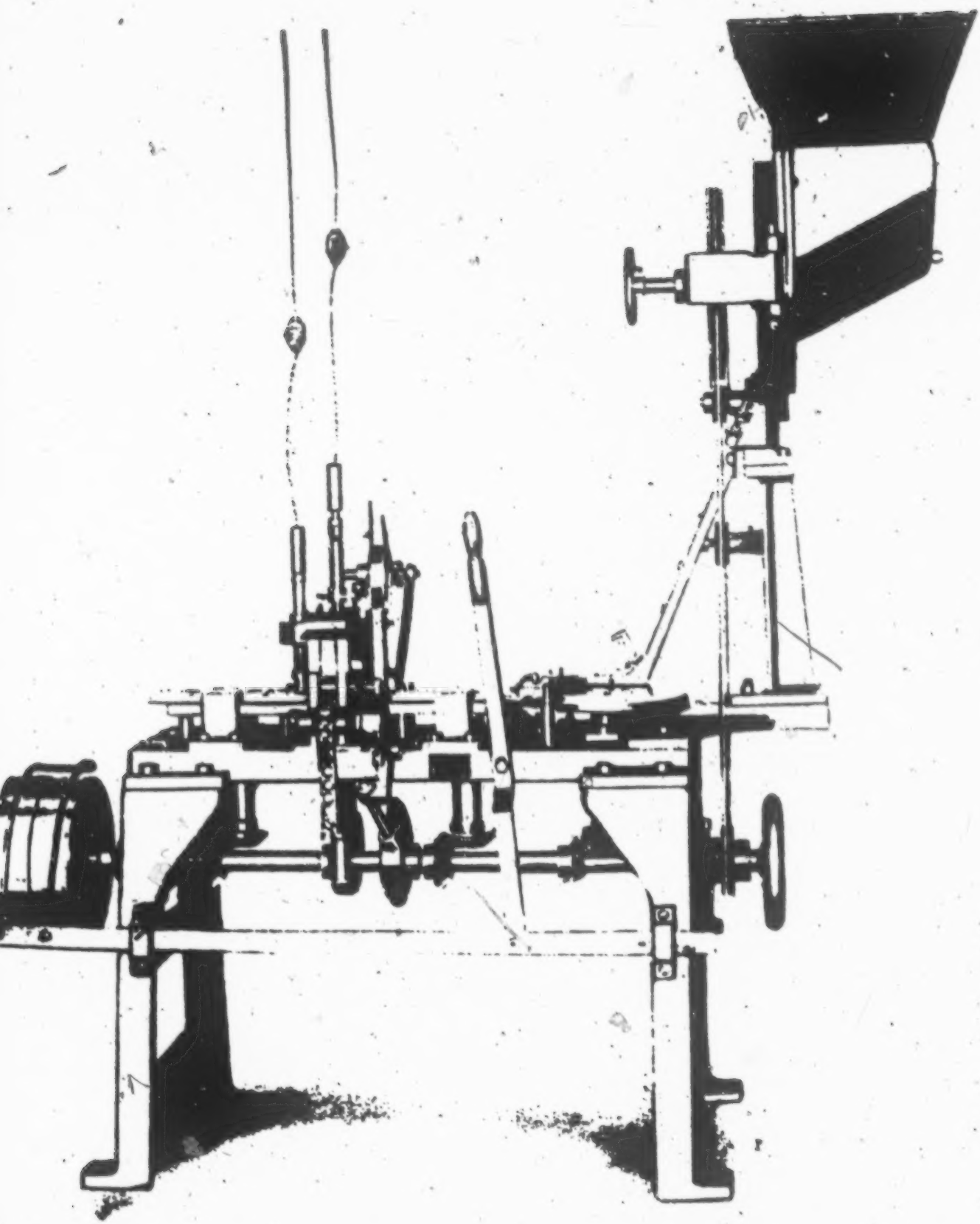
Year	Crowns Natural Cork	Crowns Aluminum Spots
1925	744,213	.....
1926	574,100	.....
1927	67,384	367,263
1928	120,163	10,053
1929	272,670	262,025
1930	200	194,315
1931	35,598	279,638
1932	600	255,831
1933	4,998	1,423,235
1934	.....	680,877

(Here follows 1 drawing, side folio 780)

608A

780

PLAINTIFF'S EXHIBIT No. 35



BLANK

PAGE

[fol. 781] PLAINTIFF'S EXHIBIT No. 36

(Letterhead of A. Johnson Machine Works)

October 5, 1928.

Armstrong Cork Company, Lancaster Cork Works, New Holland Avenue, Lancaster, Pa.

Attention Mr. John A. Farmer, General Manager

DEAR SIRS:

I received your letter of October 2nd, and was glad to hear from you.

I have now made some changes on the Tin Foil Machine, inasmuch as I have installed a drum with twenty-four punches on same, as I can see that the crown has to be held under pressure after the tin foil is inserted in order to make a good job. I am now working on making some changes on the heating units. I have received some special ones which are guaranteed not to burn out, and now I have to see what I can do in regard to not having the tin foil discs stick to the punch. I expect to have the machine ready sometime next week, and then I will write you at once how it is running.

With best regards, I remain

Yours very truly, A. Johnson Machine Works, A. Johnson.

AJ: WL.

[fol. 782] PLAINTIFF'S EXHIBIT No. 37

(Letterhead of Armstrong Cork Company)

April 20th, 1928.

A. Johnson Machine Works, 251 Lee Avenue, Brooklyn, N. Y.

GENTLEMEN:

Kindly let us know by return mail how soon you can ship us a machine for aluminum and tin foil spotting Crowns. We understand the price is $1500.00. We presume the ma-

chine is sold with the understanding that it must satisfactorily do our work.

Very truly yours, Armstrong Cork Company, Crown Division. John A. Farmer, General Manager.

JAF: E.

April 24, 1928.

Armstrong Cork Company, New Holland Avenue, Lancaster, Pa.

Att. of Mr. J. A. Farmer

DEAR SIR:

I received your letter of April 20, in regards to a Tin Foil Lining Machine.

[fol. 783] In answer to same I want to state that I have got one of these machines ready and also the Winding Machine to stick the Gutta Percha Lining to the foil. The price on the two machines together is $1500.00, but I have heard that McManus claims to have a patent on sticking the tin foil to the corks with adhesive.

I do not know if it is so or not, however, I asked McManus to send me the patent papers or the number of the patent so that I could secure one of the copies as I do not think that there is any patent on same as I know some concerns that have been making them for years, but I want to find out first as I do not want to infringe on anybody's patents.

I could send you this machine with the understanding that if it should be patented I would have the right to call this machine back or if you would wait until I have got the copy of the patent. You can let me know which way you would want me to do with same.

Yours very truly, A. Johnson Machine Works.

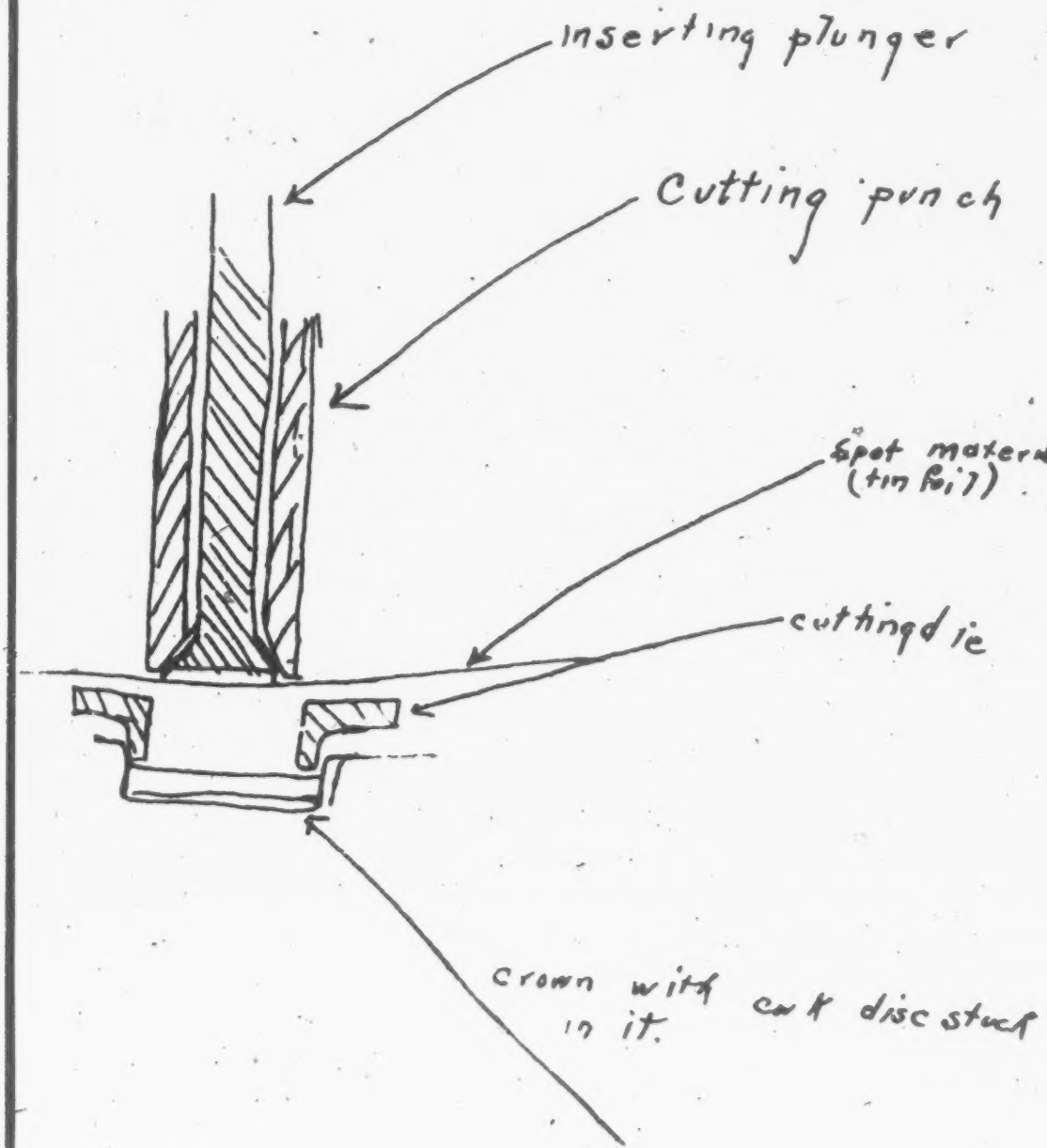
AJ/LN.

(Here follows 1 drawing, side folio 784)

610A

784

PLAINTIFF'S EXHIBIT No. 38



BLANK

PAGE

[fol. 785] PLAINTIFF'S EXHIBIT No. 39

Cable Address "Namtug" New York
Telephone Connection

Ferdinand Gutmann & Co.

New York Salesrooms
132 West 42nd St.

Sold to Inecto, Inc.,
35 W. 46th St.,
New York City

Terms:
Payable in N. Y. Exchange.
Goods shipped at purchasers' risk.

Address all Mail to Our Main Office and Factory
Bush Terminal No. 19 Brooklyn, N. Y.

May 13, 1925

Shipped to Via

For experimental work for insertion of tin centers in "B" Caps, with gutta percha, slotting cork, etc. 475 00 475 00

All Prices Subject to Change Without Notice.

All claims must be made within five days from receipt of Goods.

PLAINTIFF'S EXHIBIT No. 40

May 9th 1925.

Mr. L. A. G.

Subject—Inecto

Jesse reports to me that he had a length- session with their Mr. Evans and had the cost of experiments as well as increased cost of producing both "A" and "B" type of caps, due to the fact that they are taking considerably reduced [fol. 786] quantities from a contract of 10,000,000 and have now been compelled to reduce their capacity to 4,000,000 and all we can count on with safety is quantities to be 3,500,000 to 4,000,000.

It seems that Benno had this subject up with Jesse for some time and upon Jesse's suggestion Benno gave him an itemized statement of cost of experiments as per memo attached which amounts to a total of $619.91. As Mr. Evans is not unwilling to pay us for the experiments a reasonable amount, he naturally feels that he must take this up with his associates and therefore asks for a bill of particulars which however he positively promised to recommend for payment.

Jesse and I are both of the opinion that we ought not to make this bill any more than actual cost, especially in view of the fact that they are willing to meet us on an increase of price over and above the contract price due to the reduced quantities they are now compelled to take, which reduction is largely due to the fact that as a result of leakage and general poor results of their closure, the trade has fallen off.

Please note that according to Jesse's agreement with Mr. Evans the next shipment which we will make during the coming week is not to be billed at the old prices but Jesse is going to try to pass the bill through at the price they have discussed, namely, $2.50 per thousand instead of the agreed price of $1.85 plus $1.15 for the foil liners in all the "B's."

Invoices—If upon rechecking the inclosed statement with Benno you and I agree that same is to stand this bill together with the bill for the next shipment is to go to Jesse and not direct to the office of the Inecto Co.

FG:MMG.

(Here follow 3 photos, side folios 787-789)

612A

787

PLAINTIFF'S EXHIBIT No. 41



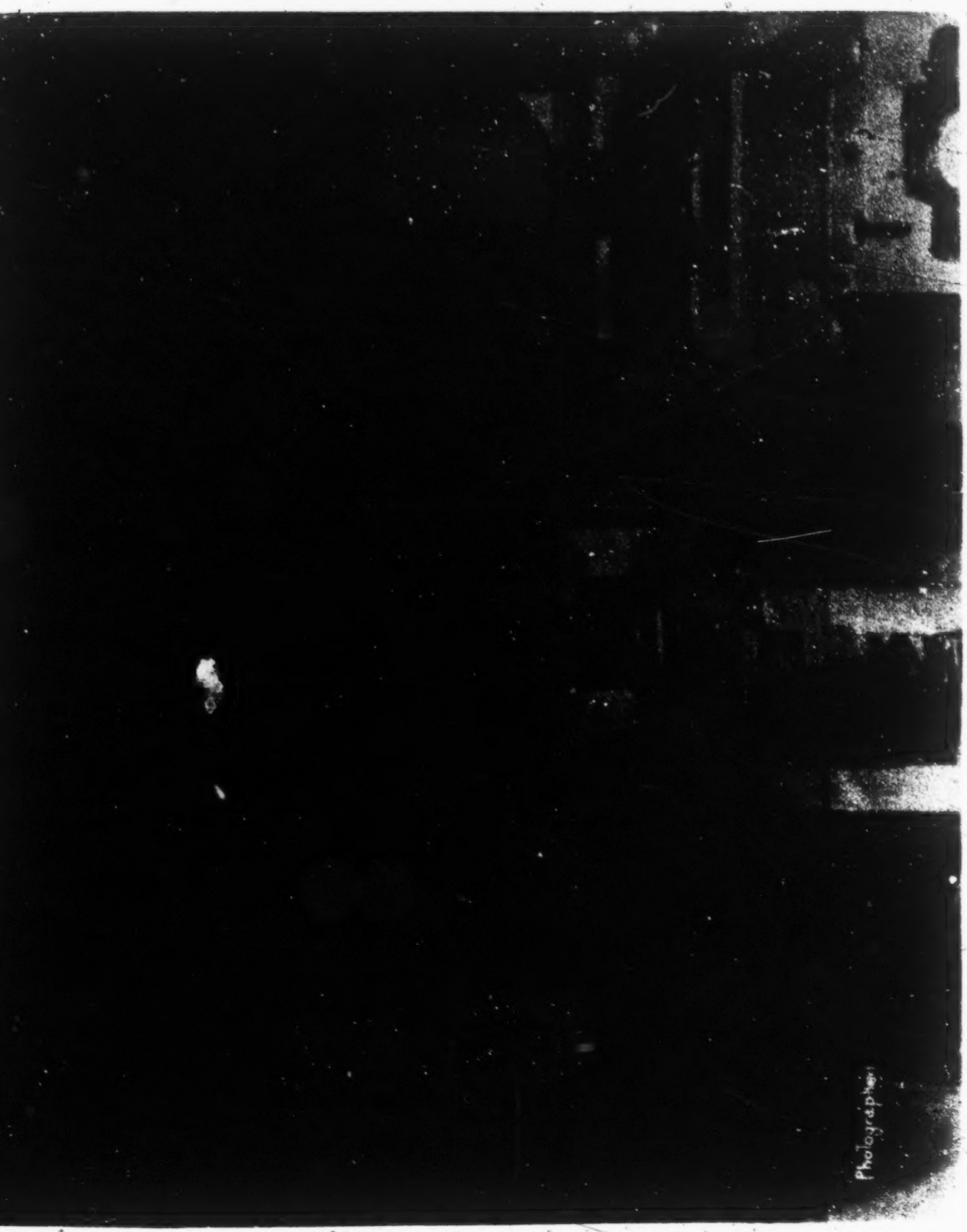
BLANK

PAGE

6128

788

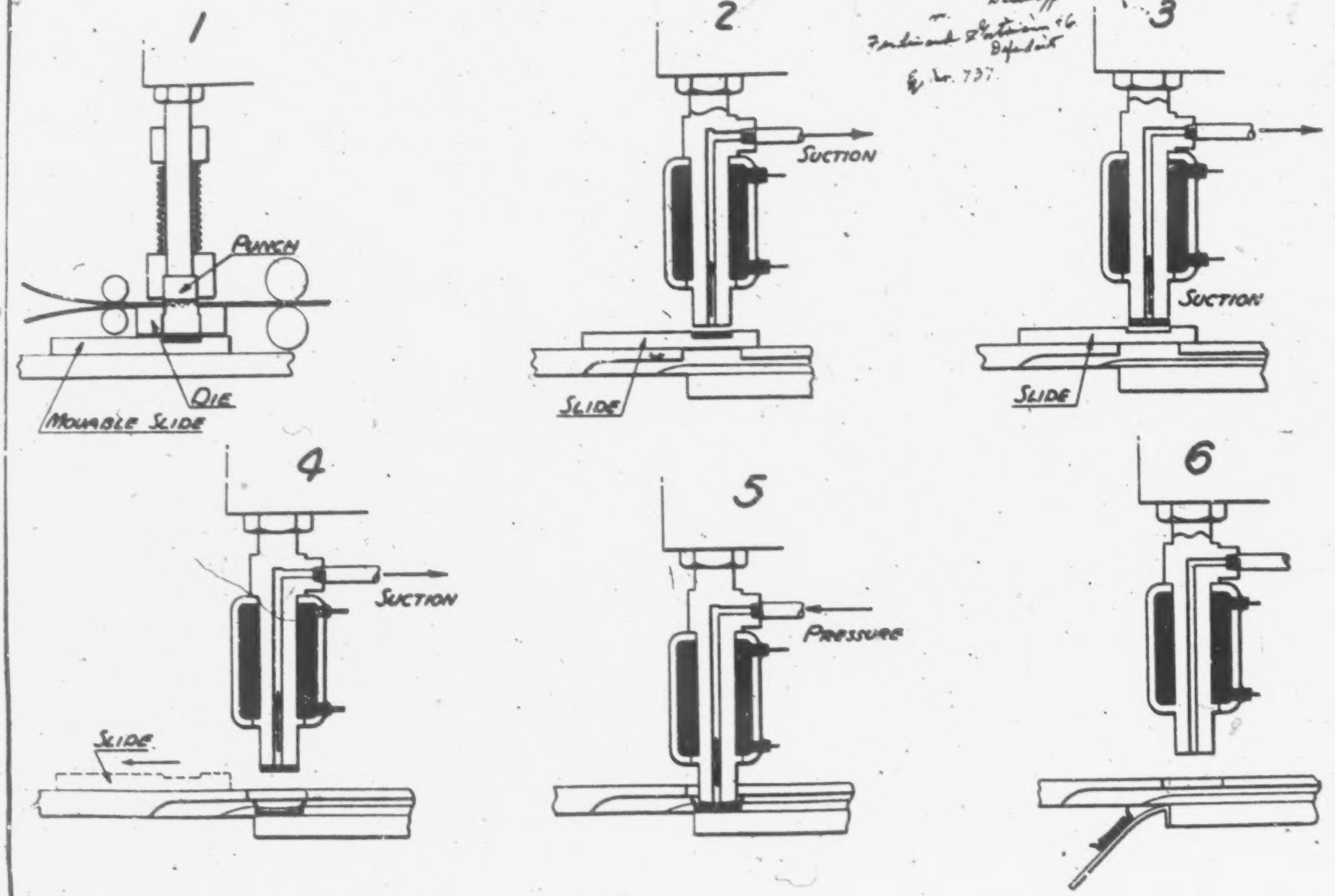
PLAINTIFF'S EXHIBIT No. 42



BLANK

PAGE

EXH 43



PLAINTIFF'S EXHIBIT NO. 43

6120
789

BLANK

PAGE

[fols. 790-791] PLAINTIFF'S EXHIBIT No. 44

The Crown Cork and Seal Co.,
Baltimore, U. S. A.

November 9th, 1921.

To: ——— ———.
From: Engineering Department, W. F. Walker, Jr.
Subject: Tin Foil Spot Machine.

The following is a short treatise on the operation of the Tin Foil Spot Attachment for #1 Crowns now in use in the Axa Department at Highlandtown.

The Tin Foil Spot is held fast to the cork of the crown by the Gutta Percha Tissue and this is accomplished in the following way as is shown on Figure #1 and #2.

The roll of Tin Foil "G" and the roll of Gutta Percha Tissue "P," are fed together thru the Feed Rolls "A," driven by Ratchet "R" which is actuated by Levers "L," which in turn receives its motion from Cam "C." The Tin Foil and Gutta Percha Tissue are fed together as previously described to the Cutting Punch "C," which cuts out the Tin Foil Spot and places it on the Feed Slide "F," which in turn, moves over into position under Heater "H." The Feed Slide is actuated by Lever "D." Now when the Feed Slide comes into position under Heater "H" with the Tin Foil Spot and Gutta Percha Tissue in place, the suction Pump "B" on its suction stroke raises the Tin Foil and [fol. 792] Gutta Percha Tissue off the Feed Slide "E," allowing same to return into its former position under the Cutting Punch to receive another spot. While the Tin Foil Spot and Tissue are being retained by the Heater "H," the Gutta Percha Tissue is being heated, the Heater "H" receives its heat power from the Induction Coil "S."

A Crown has now come into position under the Plunger and Heater "H" which has moved into position relative to applying the spot to the crown. This is accomplished by the action of the Pump "B," which on its return stroke blows the spot from its position in the Heater on to the Crown which is then pressed on to the cork in the crown by the Heater Plunger. This completes the cycle of operations necessary for applying the Tin Foil Spot to the assembled #1 Crown.

(Signed) Wm. F. Walker, Jr., W. F. Walker, Jr.,
Asst. Chief Draftsman.

(Here follow 4 photos, side folios 793-796)

614A
793

PLAINTIFF'S EXHIBIT NO. 45



BLANK

PAGE

6148

794



BLANK

PAGE

THE CROWN CORK AND SEAL COMPANY

REQUEST AND AUTHORIZATION FOR APPROPRIATION

DATE ISSUED 12-11-26 — FOR ALL (EXPENDITURES FOR EQUIPMENT, REPAIRS, ALTERATIONS OR EXPERIMENTS) EXCEEDING $25.00 — APPRO NO 910.36

FACTORY	DEPARTMENT	CHARGE
Highlandtown		M. & E.

SIGNED [signature] — CHIEF FACTORY ACCOUNTANT

ESTIMATED COST

MATERIAL

LABOR

EXPENSE 3/8/27 $1185.71

TOTAL ~~$1100.00~~

DESCRIPTION To cover making and assembling three aluminum spot cutting and applying devices attached to Crown Assembling Machines as per blue prints.

EXPLANATION We have three Assembling Machines equipped at present. The above will give us a total of six that are necessary for the Anheuser-Busch trade.

REQUESTED BY

Geo Goebel

GEORGE GOEBEL

[signature]

APPROVED

WORKS MGR. [signature]

GEN. SALES MGR.

OFFICE MGR. [signature]

AUTHORIZED

COMPTROLLER [signature]

COMMITMENTS

PURCHASE ORDER No.	COMMITTED OR PAID AMOUNT	PURCHASE ORDER No.	COMMITTED OR PAID AMOUNT

E7971

United States District Court
Eastern District of New York
Pltf Exhibit 50 in evidence
Date Nov-12/35
Clerk
Deputy Clerk

PLAINTIFF'S EXHIBIT NO. 50

6140
795

6140
796

APPRO. No. 9036

DATE 1936	POSTING REFERENCE	DESCRIPTION	MATERIAL	LABOR	OVERHEAD	NET DEBITS	CREDITS FOR POSTING ONLY
Dec. 31	J. 19025	H. Pay Roll		76535	17880	39415	
	J. 19031	Mat. Req	7483			7483	
	J. 19032	"	2031			2031	
	J. 19050	"	77			77	
1937 Jan.	J. 5001	H. Pay Roll		26135	6080	32215	
	J. 5003	Mat. Req	15769	39572	14779	70120	
Feb.	J. 555	M. & C.	5276	660 57	2764	11855 21	11855 21

[fol. 797] PLAINTIFF'S EXHIBIT No. 51

The Crown Cork and Seal Co.,
Baltimore, U. S. A.

April 15th, 1925.

To: The Executive Committee,
From: The Operating Committee.
Subject: Minutes of Meeting of Operating Committee held April 14th, 1925.

The following are the Minutes of the Operating Committee held on April 14th, 1925, at which were present—

Messrs. J. R. Gorman, E. J. Costa, Henry Mann, F. E. Fusting.

Obsolete, Surplus and Idle Machinery and Equipment

We have very carefully reviewed all of the various items of machinery, tools, equipment, etc., comprising the item of $1,045,432.55, as reflected on the Balance Sheet of February 28th. In setting forth our recommendations we have fully considered the nature of the item, its probable value for future use, together with the desirability of effecting immediate disposition and rendering the space occupied thereby available for other purposes. Our recommendations are contained in the tabulation which follows, and as shown under the caption "Disposition":

[fol. 798]

Description	Value of Cost Appraised	Disposition
Uncompleted Goebel Cork Feeders	$58,466.22	Hold
Uncompleted Goebel Cutting Presses	56,428.00	Hold
Trade Machine Tools	284,248.42	Sell obsolete and inefficient tools and most of surplus made by outside suppliers
Serax Slicing Mach. & Equipment	13,341.00)	Scrap if addition.
Serax Blacking Mach. & Equipment	12,772.80)	3" units are built.
Bleach. Machry. & Equip. Old Dept.	4,320.00	Scrap
8 Embossing Machines	7,904.00	Sell
2 Dacro Paste Machines	2,074.80	Scrap
1 Cork Sheet Slicing Machine	2,489.66	Hold
3 tinfoiling machines	3,705.60	Scrap
1 J. A. Fay & Eagan Resaw Machine	2,979.78	Hold
2 Taper machines	1,237.40	Sell
Block Moulding Equipment	20,181.00	Hold
53 Goebel Cork Feeders	111,300.00	Hold
15 Automatic Ovens, 1 Rotary Press, 1 Flat Bed Press and motor for driving ovens, oven fans and presses	97,718.91	Hold

Description	Value of Cost Appraised	Disposition
Old Serax Grinding Mchry. and equipment..	29,541.08	Hold as Reserve
Bleaching Machry. & Equipment—New Dept.	11,104.15	" " "
2 Baling presses and pumps	2,217.16	" " "
2 Knowlton Paper Processing Machines	3,456.92	" " "
1 Special Machine for stripping corkwood..	949.43	" " "
4 Attrition Mills	3,738.68	" " "
1 Wolf Double Disc Aspirator	331.67	Sell
Natural Cork Disc Machry. & Equipment..	139,980.10	Hold
Miscellaneous machines in Mach. Shop	74,945.77	Sell portion
Miscellaneous equipment in Mach. Shop	100,000.00	" "
	$1,045,432.55	

The items marked "Hold" are not obsolete, but, on the contrary, are modern, up-to-date equipment, and we consider have a very distinct value and should be held. The items marked "Sell" we intend should be sold under the conditions which will yield the greatest return. The items marked "Scrap" are to be scrapped and sold to the highest bidder.

If our recommendations as herein contained are approved, steps will be taken immediately to effect disposition as rapidly as possible.

Respectfully submitted, —— ——, Chairman, Operating Committee.

B.

(Here follow 6 photos, side folios 799-804)

616A

799

PLAINTIFF'S EXHIBIT No. 52



BLANK

PAGE

6168
800

BLANK

PAGE

C 883-1M-6-20-28

THE CROWN CORK AND SEAL COMPANY

REQUEST AND AUTHORIZATION FOR APPROPRIATION

FOR ALL (EXPENDITURES FOR EQUIPMENT, REPAIRS, ALTERATIONS OR EXPERIMENTS) EXCEEDING $25.00

DATE ISSUED 1-21-27 APPRO. NO. 9107

FACTORY	DEPARTMENT	CHARGE	SIGNED	ESTIMATED COST
Highlandtown		M & E.	CHIEF FACTORY ACCOUNTANT	MATERIAL LABOR EXPENSE TOTAL $500.00

DESCRIPTION To cover making a pre-assembling machine for Guttaperche ribbon and aluminum foil for Aluminum Spot Machines.

EXPLANATION To eliminate difficulties with Guttaperche ribbon on spot machines/ This will increase production of aluminum spot crowns considerably.

REQUESTED BY: Geo. Sockel
GENERAL FOREMAN

Adams

APPROVED
WORKS MGR. [illegible]
GEN. SALES MGR.
OFFICE MGR. [illegible]
AUTHORIZED
COMPTROLLER [illegible]

$7337

COMMITMENTS

PURCHASE ORDER No.	COMMITTED OR PAID AMOUNT	PURCHASE ORDER No.	COMMITTED OR PAID AMOUNT

United States District Court
Eastern District of New York

Of Exhibit 53 in evidence

Date Nov-13/35

Clerk

Deputy Clerk

Exhibit No. 60.87

Date Nov 13 1935

Attorney for Defendant

Jan 10 1936

PLAINTIFF'S EXHIBIT NO. 53

616
801

6160
802

APPRO. No. 9109

DATE 1921	POSTING REFERENCE	DESCRIPTION	MATERIAL	LABOR	OVERHEAD	NET DEBITS	CREDITS FOR POSTING ONLY
Jan.	M.J 5001	H. Pay Roll		8470	3774	116 94	
"	" 5003	Mat Req	42 28			42 28	
Feb.	" 9016	H. Pay Roll		68 75	31 98	100 73	
"	" 9032	Mat Req	11 49			11 49	
Aug.	" 17149	M. & E	53 77	154 95	60 22	270 94	77 09

THE CROWN CORK AND SEAL COMPANY

REQUEST AND AUTHORIZATION FOR APPROPRIATION

FOR ALL EXPENDITURES FOR EQUIPMENT, REPAIRS, ALTERATIONS OR EXPERIMENTS EXCEEDING $25.00

DATE ISSUED 2-24-27 APPRO. NO. 91133

FACTORY	DEPARTMENT	CHARGE	SIGNED	ESTIMATED COST
Highlandtown		M t E	CHIEF FACTORY ACCOUNTANT	MATERIAL LABOR EXPENSE TOTAL $300.00

DESCRIPTION To cover building an additional gutta percha rewinding machine identical to the one built on appropriation #91092.

EXPLANATION The first machine is working satisfactorily but is inadequate for entire demand for Foil Center Spot crown production.

REQUESTED BY

Geo. Goebel

GEORGE GOEBEL

APPROVED

WORKS MGR.

SEAL SALES MGR.

OFFICE MGR.

AUTHORIZED

COMPTROLLER

JUN 1 1932

DOCKET DIVISION

COMMITMENTS

PURCHASE ORDER No.	COMMITTED OR PAID AMOUNT	PURCHASE ORDER No.	COMMITTED OR PAID AMOUNT
67371			

United States District Court
Eastern District of New York
Pltf Exhibit 54 in evidence
Date Nov 13/35
Fred Clerk
Deputy Clerk

Exhibit 48 for ID
Warren Lange
Direct
Jack Fahrman
Notary Public

PLAINTIFF'S EXHIBIT NO. 54

6161

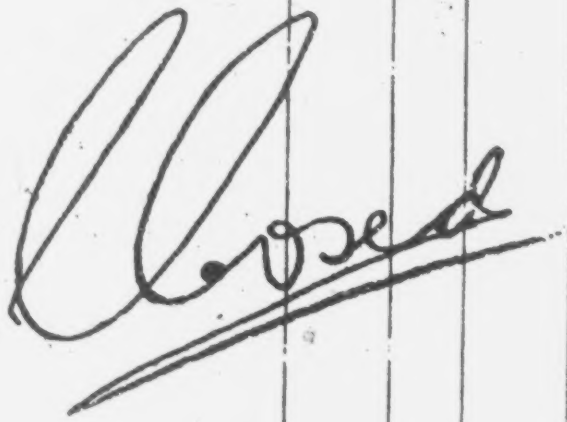
803

6161

804

APPRO. No. 41155

DATE 1917	POSTING REFERENCE	DESCRIPTION	MATERIAL	LABOR	OVERHEAD	NET CREDITS	CREDITS FOR POSTING ONLY
Mar.	M.J. 1001	H. Pay Roll		37 10	14 35	47 15	
"	J. 1006	Mat. Req.	69 57			69 57	
Jan.	M.J. 749	M. & E.				11 67	11667



[fol. 805] PLAINTIFF'S EXHIBIT No. 55

Adhesive for sticking Al. spots.

November 19, 1926.

Supt. Prod. Machy. G. Goebel.
Chemical Engineer, A. H. Warth.

Adhesive for Aluminum Foil

I spoke to you the other day about a product which is being made by E. I. duPont and which is suited for adhesive purposes. This particular material has the nitrocellulose and gum base and is already thinned to a consistency that makes it easy to apply to paper or other material. It dries quite readily, almost without the aid of heat and produces a firm, dry film. When this film is heated it becomes real tacky.

It was our intention to provide you with a sample, but find that we used all the material, and have sent to the duPont Company for another sample. When this arrives we will coat some Aluminum Foil and let you have the coated Foil.

(Signed) A. H. Warth, Chemical Engineer.

AHW—S.

[fol. 806] PLAINTIFF'S EXHIBIT No. 56

Non-Metallic Spot Crown for Sealing Liquids

My invention relates to that class of caps, closures, or crowns, that have a circular spot in the center of the cork disc or other liner, to prevent the contents of the package sealed, from coming in direct contact with the cork or other liner material.

Heretofore the spot in the center of the disc or liner of the crown has been made of metal, such as aluminum or tin, more particularly of tin because of its extreme flexibility and its superior sealing qualities. Bottle caps or crowns having a tin foil spot in the middle of the disc and not extending to the outer circumference of the discs are also known in the trade as tin foil center crowns. These crowns are used in enormous quantities in the sealing of both plain and carbonated waters, especially on those waters which have a sufficient degree of alkalinity or containing mineral matter, harmful to the cork disc. They are also used to a

lesser extent on beverages, chemical liquids, and other packaged goods, where there is danger of the substance staining or disintegrating cork and thereby more or less spoiling the contents of the package.

The object of my invention is to provide a closure having a disc with a non-metallic spot and which will have a broader field of application than the tin foil center crown now enjoys and to include the sealing of alkalinated and acidulated liquids and beverages that will ordinarily corrode tin foil and any other metals in commercial use for the purpose.

My further object is to provide a non-metallic spot crown [fol. 807] which is in every way as efficient as the metallic spot crown but more economical to manufacture than the metallic spot crown because of the lower cost of the material used in the spot.

Undoubtedly attempts have been made to use waxed paper, parchment paper, and the like as substitutes for the metallic spot, but such attempts have always resulted in failure for the reasons hereinafter set forth.

In order to completely cover the mouth of the bottle, the spot must be made slightly larger than the mouth, so that the spot actually overlaps the locking ring. In so doing and then placing the crown on the bottle, a paper of ordinary commercial quality and thickness splits or breaks when crown is forced on locking ring of bottle. Then again the ordinary commercial paper will not because of its thickness, stiffness and lack of elasticity seal high pressures, as 60 lbs. to 100 lbs. per sq. in. without leakage.

In my particular non-metallic spot crown I use an extremely tough and flexible paper, coated on one or both sides with varnish, or pitch or the like, more particularly an insulation paper prepared by varnishing express paper, which is wholly or largely made of a base of sulfite pulp, in contrast to coated Kraft (sulfate) paper and other papers, and which papers lack the tasteless, odorless, and flexible qualities of the coated express paper. Further I use this varnished express paper of a thickness of not less than .005" and not over .015", and a backing of elastic tissue such as gutta percha or the like, to secure the necessary sealing properties.

The attachment of the non-metallic spot to the cork [fol. 808] disc is effected by means of the elastic tissue,

which becomes sticky when warmed and adheres both to the disc and to the spot. The elastic tissue being insoluble in the liquid on which the non-metallic spot crown is placed tends to prevent the loosening of the spot in long contact with the contents of the bottle so sealed.

In the machine assembling operation a piece of the varnished paper is fed to the cutting punch with a piece of underlying gutta percha tissue. Both are then cut together to the required circular dimension, and the double spot cemented to the disc by means of a heated plunger being brought in contact with the varnished paper, and further keeping this contact by means of applied pressure to the spot until it is firmly cemented to the disc.

A wax coating may be placed over the non-metallic spot, overlapping its outer circumference; but this is not essential in securing a tight seal and holding high carbonation pressures without rupture of the spots or loosening of the spot from the disc. A wax coating, however, is preferable where the liner is a composition cork and not a natural cork disc.

What I claim as my invention is a new non-metallic spot for a Crown Cork, such spot being made of a material of proper nature, thickness and quality to seal liquids without tear or breakage of the spot under regular conditions of crowning.

A non-metallic spot of such material and assembly that will uniformly hold a carbonation pressure of at least 60 lbs. per sq. in. of the liquids on which the crown is placed.

A non-metallic spot which is affixed to the disc by means [fol. 809] of an elastic, adhesive, and water insoluble tissue such as gutta percha and in the manner described.

A non-metallic spot having all of the protective properties of the tin foil spot, and of a wider field of application than the latter in the sealing of liquids of all kinds.

Albin H. Warth.

Witnessed: George Goebel.
July 13, 1925.

PLAINTIFF'S EXHIBIT No. 57

Copy sent to Mr. Larduskey.

July 24, 1933.

John Waldron Corp., New Brunswick, N. J.

Attention Mr. L. B. Case

GENTLEMEN:

Relating to the proposal dated June 29th covering a complete line of foil coating, drying and slitting equipment, the general line-up looks satisfactory to us.

However, several modifications will have to be made of which Mr. Case is familiar but in order not to delay the building of the equipment, you may proceed to construct [fol. 810] same and furnish this company with a revised print explaining the general arrangement more fully.

The total price of this equipment is to be $10,270.00 plus a 25" to 30" chill roll which is to be installed after the coated material is discharged from the drying unit. Mr. Case will advise this company as to the extra cost on this chill roll.

The completion of this equipment is expected to be within 6 to 8 weeks. We expect the Waldron Company to furnish us a floor plan so we may have the necessary elevated platform completed when the equipment arrives.

Should there be any other question, kindly get in touch with us immediately to avoid any unnecessary delay.

Yours very truly, The Crown Cork and Seal Company. George Goebel.

GG:IC.

(Letterhead of John Waldron Corporation)

New Brunswick

June 29, 1933.

Crown Cork & Seal Co., Baltimore, Md.

Attention Dr. A. H. Warth and Mr. Geo. Goebel

DEAR DR. WARTH AND MR. GOEBEL:

Enclosed herewith please find copy of our outline drawing [fol. 811] #182-33 by the J. O. Ross Engineering Corp., indicating the suggested assembly for the proposed special coating installation at your Baltimore Works, and designed

for assembly in the space measuring 60 ft. in length by 14 ft. in height adjoining your laboratory.

We have broken down the various figures entering into the total cost of this proposed equipment so you may consider same individually, and these costs are as follows, proportioned for 25″ wide foils.

Reverse roll coating machine	$1900.00
Mechanical apparatus inside of the dryer, including the conveyor equipment, together with front and tail ends	$1650.00
An automatic guider of the Waldron-Dickhaut type for the guiding of the foil to the slitter and rewinder, will cost, not including the ¼ H. P. motor	$210.00
Slitter and rewinder, equipped with 26 slitters for the cutting of ribbons 1″ wide and including a trim	$1850.00
Drying system designed for the handling of air up to 200° F., and indirect furnaces, as per drawing	$4960.00
Ditto 450° F.	$5910.00
Drying system designed for the handling of air up to 200° F., and direct furnaces, modification of drawing (Nichols type No. 2)	$4460.00
Ditto 450° F.	$4660.00

Above costs are f. o. b. shipping points, subject to our regular terms of 1½% 10 days, net 30 days from date of shipment.

[fol. 812] Reverse Roll Coating Machine: Enclosed photo #4806 illustrates in a general way the type of construction which we propose to use in fabricating the reverse roll coating machine for the special lacquers as laid here at New Brunswick during the test runs, with the exception of a doctor roll is used in place of the doctor blade, as per the illustration. The raw stock roll stand is assembled close to the backing roll or cylinder to eliminate a long draw for the goods previous to coating, and we include variable speed control for the very accurately finished and ground chilled iron casting roll, together with micrometer adjustments for the casting roll and doctor roll. A dope pan is included, together with a modified suction attachment to maintain tension on the light weight foils while casting the coating in

place and without the necessity of applying an excessive amount of tension at the rewinding end of the dryer. The main drive for this reverse roll coating machine to be constructed for belt transmission, allowing for a quarter turn belt from an overhead lay shaft.

Conveyor and Threading Apparatus: Under this heading we include all the necessary roller chain, with special fixtures for the mounting of supporting cross members, the necessary head and tail roll sprockets, together with bearings, cross shafts, take-ups, and geared reductions for the application of power by means of an overhead lay shaft and belt, also a group of pulling out rolls synchronized with the conveyor equipment and interconnected by means of gearing and a clutch assembly so the conveyor may be stopped [fol. 813] at the will of the operator without stopping the flow of foil through the machine. Also these pulling out rolls will be assembled in such a manner that the goods may be led direct to a slitter and rewinder in place of the jumbo roll, as indicated on the drawing enclosed. No jumbo roll apparatus is included.

Together with the roller chain we include the necessary supporting and guiding mediums for assembly inside the dryer housing, and approximately 90—2¼" diameter roller bearing idler rolls assembled fast to the conveyor chain in such a manner that the conveyor chain may be used as a threading medium and then stopped while the goods may flow freely over the idler rolls from the coating machine to the slitting and rewinding apparatus. Such an assembly allows for the ready inspection of the various idler rolls assembled with the equipment and the same assembly also acts as a threading medium. No lay shaft with bearings is included with the equipment.

Slitter and Rewinder: Under this heading we include one slitter and rewinder of the same general construction as the machine inspected on our erecting floor, but equipped with slitter blades suitable for the slitting of foils in widths of 1", and we include leading out rolls assembled between the slitting knives and the rewinding shafts to prevent any tendency of the goods to buckle and allow loosely wound finished rolls of foil.

Drying Equipment: This system should be capable of drying 7,000 sq. in. of coated material in ten hours. For [fol. 814] drying this material under maintained condition of about 200° F., we would furnish the following:

Supply Unit: There will be two independent supply units each consisting of one section of type D-E Indirect Nichols gas fired unit, together with Clarage supply fan of the multivane design, which would deliver necessary volume of drying air when operated in connection with 3 H. P. motor.

Air Distribution: Supply air would be made up of volume of recirculated air together with the make up fresh air and would finally reach the sheet through perforations in the distributor duct located directly above the traveling material. The recirculated air as well as the exhaust will be drawn from below the material through the system of duct work terminating part at the exhaust, the balance in the supply unit. The recirculating and exhaust air volume would be kept under proper control by means of a system of dampers proportioning this air as conditions may require.

Exhaust Hood for Coater: We would provide the galvanized steel hood to be suspended directly above the coating rolls in order to take away the evaporated solvents as fast as they are produced. To this hood you could attach fan of suitable size to make this withdrawal positive.

All of the foregoing ducts and connections will be made up of substantial gauge galvanized steel or black iron in order to provide rigid construction.

[fol. 815] Dryer Housing: The housing will be built up of panel type construction formed by two outside sheets in between which is a 3" blanket of mineral wool. For supporting this housing we would provide all necessary structural steel as well as stiffening and bracing members which may be required. A number of inspection doors on the front side of this housing would be provided in order to permit observation of the process or for access purposes.

Automatic Temperature Control: In order that the operating temperature of this unit may be accurately controlled we have included in this estimate, one Foxboro single pen recorder controller for each of the two drying zones. This control device would be complete with bulb, flexible tubing, recording charts, filter set, safety and pressure reducing valves, but no control valve for regulating volume of gas being discharged into the heater. Supplementing these recorders we would furnish indicating thermometer at each of the two zones to enable the operator to observe maintained temperature within.

We have not included in this estimate any compressor as we believe suitable and constant supply of compressed air is available at the plant.

Texrope Drives: For driving each of the two supply fans as well as exhaust fan mentioned later, we would provide Texrope drives consisting of fan and motor sheaves and necessary number of flexible "V" belts.

Exhaust Unit: For removing the spent vapors from the system, we would furnish single exhaust fan located ap- [fol. 816] proximately at the center of the oven. This fan would be complete with the necessary discharge duct work. We would recommend, but we do not furnish, 1 H. P. motor for this fan.

To be Furnished by Customer: As requested by you, we have omitted from this proposal exhaust fan for the coater hood, gas burners, and valves, motors, control switches and other electrical devices and other incidental accessories necessary to complete Drying System which we have outlined. Purchaser will also furnish and install all insulation for exposed duct work and heater casings, and provide necessary labor for erecting the housing apparatus, structural steel, and duct work. Will also make any necessary building alterations to accommodate the apparatus.

Erection: We can furnish an erection superintendent to supervise and help in the erection of the housing and duct work for $1.50 per hour per regular 8 hour working day, time and one half for all overtime, plus expenses to, from, and on the job.

Shipping Points

Waldron equipment, New Brunswick, N. J.
Fans, Kalamazoo, Mich.
Heaters, New Brunswick, or Detroit
Duct, work, casings and housing, New Brunswick, N. J.
Automatic controls, Foxboro, Mass.
Texropes, West Allis, Wis.

[fol. 817] In setting up our estimates we have not included the lay shaft synchronizing the coating head with the slitter and rewinder, as this is an item that we believe you may better handle after the equipment has been assembled fast to your building, as any aligning and drilling of bolt holes while fabricating the housing may not correspond with sufficient accuracy due to slight variations in the building itself, and this means the work would have to be rechecked in the field.

We do not believe you will require over a 3 H. P., 40° motor to handle the mechanical equipment, although you may wish to install a 5 H. P. motor to avoid any possible overloadings at any time.

Enclosed please find a copy of our log sheet showing the exact conditions produced during the experimental tests here at our New Brunswick Works this week, and it has been a pleasure to have both Dr. Warth and Mr. Goebel at our New Brunswick Works during these test runs.

Thanking you most kindly for this opportunity of quoting and hoping we may be favored with your order, which we assure you will receive our prompt attention, we are,

Very truly yours, John Waldron Corporation, L. B. Case, C. E.

LBC M.

(Here follows 1 photo, side folio 818)

626A

818

4806

BLANK

PAGE

[fol. 819] PLAINTIFF'S EXHIBIT No. 58

Mr. Gassman. Mr. Fusting.

July 11, 1933.

Mr. George Goebel, Chemical Director, A. H. Warth

Thermoplastic Coated Foil Spots.

The second lot of Thermoplastic Coated Aluminum Foil of .0022" thickness prepared at the Waldron Company and slit here, was put through the regular assembling operation on the third floor.

The only difficulty which we had with this lot was in the interruptions on the machine due to the fact that the slitting was bad, much of the foil being *no* narrow that the skeleton repeatedly broke. The spots, however, were well cent*u*red throughout.

Only 10 gross were run through the machine and those were placed in the hopper of an Improved Jumbo and run under practical operating conditions. None of the spots came off, and there was only one spot with a turned up edge. The regular gutta percha spot crowns were run through the machine, using the same quantity and under the same conditions. None of the spots fell off the discs, but there were eight turned up edges and innumerable edges which showed a very slight turning up.

As you will recall, with the first test the defects of the Thermoplastic Coated Spot were very much higher than with the Gutta Percha Spots. This we attribute as being due to the fact that there were many changes made in the thickness of the coating, the temperature of drying, etc.

It was contemplated that the second run would be better than the first, and the third run of coated foil which has not [fol. 820] yet been delivered here should be superior to the second. The proper slitting of the foil will undoubtedly preclude machine interruptions. The tests on the bottled beverages have thus far shown a great superiority of the Thermoplastic Coated Spot over the Gutta Percha Coated Spot in its adhesion to the cork over an extended period of time.

(Signed) A. H. Warth, Chemical Director.

AHW/ms.

PLAINTIFF'S EXHIBIT No. 59

Proposal and Contract from John Waldron Corporation, New Brunswick, New Jersey, U. S. A.

Aug. 11, 1933.

Crown Cork & Seal Co., Baltimore, Md.:

We propose to furnish you the apparatus, described in the attached specifications, to be delivered F. O. B. New Brunswick, N. J., U. S. A.

One Equipment for the Coating Drying and Slitting of Foil, Proportioned for a Maximum of 25¾" Wide Materials

Reverse Roll Coating Machine:

This machine is a special design incorporating the reverse roll principles recently perfected for the accurate control [fol. 821] and uniform coating of goods in web form and demonstrated to the Crown Cork & Seal Co. on foil products.

The raw stock roll stand is assembled close to the backing roll or cylinder to eliminate a long draw for the goods previous to coating, and we include variable speed control for the very accurately finished and ground chilled iron casting roll, together with micrometer adjustments for the doctor roll. A dope pan is included, together with a modified suction attachment to maintain tension on the light weight foils while casting the coating in place and without the necessity of applying an excessive amount of tension at the rewinding end of the dryer. The main drive for this reverse roll coating machine to be constructed for interconnecting to the conveyor drive, allowing for a quarter turn belt from an overhead lay shaft.

Conveyor and Threading Apparatus:

Under this heading we include all the necessary roller chain, with special fixtures for the mounting of supporting cross members, the necessary head and tail roll sprockets, together with bearings, cross shafts, take-ups, and geared reductions for the application of power by means of an overhead lay shaft and belt, also a group of leading out rolls in line with the conveyor equipment, and a clutch is assembled so the conveyor may be stopped at the will of the operator without stopping the flow of foil through the machine.

Together with the roller chain, we include the necessary supporting and guiding mediums for assembly inside the [fol. 822] dryer housing, and approximately 90-2-¼" diameter roller bearing idler rolls assembled with the conveyor chain in such a manner that the conveyor chain may be used as a threading medium and then stopped while the goods may flow freely over the idler rolls from the coating machine to the slitting and rewinding apparatus. Such an assembly allows for the ready inspection of the various idler rolls assembled with the equipment and the same assembly also acts as a threading medium. No lay shaft with bearings is included with the equipment; neither do we include motor and variable speed control.

Automatic Guider:

We propose assembling fast to the frames of the dryer apparatus at the rewinding end of the machine a Waldron-Dickhaut automatic guider for the side guiding of the goods, correcting for any misalignment before slitting. We include with the automatic guider a small vacuum pump, together with base plate and V belt, ready for assembly with a ¼ H. P. motor, no motor is included.

Slitter and Rewinder:

Under this heading we include one slitter and rewinder of the same general construction as the machine inspected on our erecting floor, but equipped with slitter blades suitable for the slitting of foils in widths of 1", and we include leading out rolls assembled between the slitting knives and the rewinding shafts to prevent any tendency of the goods to buckle and allow loosely wound finished rolls of foil.

[fol. 823] Drying Equipment:

This system is designed to dry 7,000 sq. in. of coated material in ten hours. For drying this material under maintained condition of about 450° we will furnish the following:

Supply Unit:

There will be two independent supply units each consisting of one section of type N2 direct Nichols gas fired unit, together with Clarage supply fan of the multivane design, which would deliver necessary volume of drying air when operated in connection with 3 H. P. motor.

Air Distribution:

Supply air would be made up of volume of recirculated air together with the make-up fresh air and would finally reach the sheet through perforations in the distributor duct located directly above the traveling material. The recirculated air as well as the exhaust will be drawn from below the matrial through the system of duct work terminating part at the exhaust, the balance in the supply unit. The recirculating and exhaust air volume would be kept under proper control by means of a system of dampers proportioning this air as conditions may require.

Exhaust Hood for Coater:

We would provide the galvanized steel hood to be suspended directly above the coating rolls in order to take away the evaporated solvents as fast as they are produced. To [fol. 824] this hood you could attach fan of suitable size to make this withdrawal positive.

All of the foregoing ducts and connections will be made up of substantial gauge galvanized steel or black iron in order to provide rigid construction.

Dryer Housing:

The housing will be built up of panel type construction formed by two outside sheets in between which is a 3" blanket of mineral wool. For supporting this housing we would provide all necessary structural steel as well as stiffening and bracing members which may be required. A number of inspection doors on the front side of this housing would be provided in order to permit observation of the process or for access purposes.

Automatic Temperature Control:

In order that the operating temperature of this unit may be accurately controlled we include in this proposal, one Foxboro single pen recorder controller for each of the two drying zones. This control device would be complete with bulb, flexible tubing, recording charts, filter set, safety and pressure reducing valves, but no control valve for regulating volume of gas being discharged into the heater. Supplementing these recorders we would furnish indicating thermometer at each of the two zones to enable the operator to observe maintained temperature within.

We have not included in this estimate any compressor, as we believe suitable and constant supply of compressed air is available at the plant.

[fol. 825] Texrope Drives:

For driving each of the two supply fans as well as exhaust fan mentioned later, we would provide Texrope drives consisting of fan and motor sheaves and necessary number of flexible "V" belts.

Exhaust Unit:

For removing the spent vapors from the system, we would furnish single exhaust fan located approximately at the center of the oven. This fan would be complete with the necessary discharge duct work. We would recommend, but we do not furnish, 2 H. P. motor for this fan.

Price:

Cost of this above specified equipment, including drying system designed for the handling of air up to 450° F, and direct furnances, as per drawing, is $10,270.00.

Cooling Apparatus:

This unit consists of a reconditioned 36" diameter cylinder fitted with hollow shafts for the circulation of cold water inside, also a back geared drive with cross shaft, bearings for the drive shaft and the cylinder all assembled fast to structural members at the rewinding end of the machine.

Price:

The cost of this cooling apparatus amounts to $382.00.

[fol. 826] Terms:

1½% Ten days, 30 days net from date of shipment.

To be Furnished by Customer:

As requested by you, we have omitted from this proposal, exhaust fan for the coater hood, gas burners and valves, motors, control switches and other electrical devices and other incidental accessories necessary to complete Drying System which we have outlined. Purchaser will also furnish

and install all cribbing, insulation for exposed duct work and heater casings, and provide necessary labor for erecting the housing apparatus, structural steel, and duct work. Will also make any necessary building alterations to accommodate the apparatus.

Erection:

We can furnish an erection superintendent to supervise and help in the erection of the housing and duct work for $1.50 per hour per regular 8 hour working day, time and one-half for all overtime, plus expenses to, from, and on the job.

Shipping Points:

Waldron equipment, Kalamazoo, Mich.
Fans, New Brunswick, N. J.
Heaters, New Brunswick or Detroit.
Duct work, casings and housing, New Brunswick, N. J.
Automatic controls, Foxboro, Mass.
Texropes, West Allis, Wis.

[fol. 827] The price of this apparatus in accordance with attached specifications is — and you are to pay the same to us as follows:

If you should elect to pay the entire bill complete within ten days from date of invoice, you may deduct 1½% of the total contract. It is understood that in the event of failure to pay the entire contract price within ten days from date of invoice for any reason whatsoever, there will be no deduction and the total contract price shall be paid in accordance with the terms. In the event of partial shipments, it is understood that you shall be invoiced for the proportionate part of the price and that the terms of payment shall be the same for this proportionate part as stated above.

In case of delay, not of our making, the price shall be paid to us at such time as it would have been payable had such delay not occurred. In case of a delay of our making, the time of payment would be extended the exact number of days as the delay caused by us.

Our apparatus is guaranteed to be free from all latent defects in material and workmanship under normal use and service, and should any part of it be found within one year from date of shipment to be so defective at the time furnished, we will repair said part F. O. B. Factory or will

furnish F. O. B. Factory a similar part to replace it, provided the original part is returned to Factory with transportation charges prepaid, and then only when our examination shall disclose to our satisfaction such part to have been so defective. We do not make any guarantee against and we assume no responsibility for any defect in metal or other [fol. 828] material that can not be discovered by ordinary factory inspection. This guarantee shall not apply to any of our apparatus which shall have been repaired or altered outside of our factory in any way, so as in our judgment, to affect its stability, nor which has been subjected to misuse, negligence, or accident.

We make no guarantee whatever in respect to other apparatus supplied which is not of our making, or any trade attachment furnished, inasmuch as such apparatus is usually warranted separately by their respective manufacturers.

This guarantee is issued expressly in lieu of all other warranties expressed or implied by law or trade usage, and of all other obligations or liabilities on our part, and we neither assume nor authorize any other person to assume for us any other liability in connection with the sale of our apparatus.

The attached specifications are final; we shall not be bound to comply with any other specifications whether or not the same are referred to.

In the event that this contract includes the services of an erecting superintendent, it is understood that the extra charge made for his services will be $1.50 per hour, based on a regular working day of eight hours, including traveling time, with double rate for overtime, Sundays and holidays. In addition to this, you are to pay his expenses from, to and on the job.

In this event you are to furnish all help required, also any required scaffolding and hoisting tackle. You will also provide all foundations, masonry work, grouting, supports, carpentry work, belts, motors, proper openings into build- [fol. 829] ing and any other material required except that which is specifically called for in our contract.

We shall not be held responsible for any loss, damage, detention, or delay caused by fires, strikes, accidents, insurrections, riots, embargoes, acts of carriers, or of civil or military authorities, or by any other cause whatsoever,

which is unavoidable or beyond our reasonable control; in no event, shall we be liable for damage resulting from the non-operation of your plant, loss of your product, or production, or for any special, indirect, consequential or additional damage whatsoever.

If we are required to pay any tax or charge hereafter imposed by governmental authority, or any other agency, upon merchandise herein described, or the production, sale, transportation, or delivery thereof, or upon any feature of this transaction, you will, upon demand assume such obligation or reimburse us for any outlay incurred.

Shipping promises are made in good faith but not guaranteed.

Title in this apparatus shall remain in us until the full purchase price including any modification or extension of payment whether evidenced by note or otherwise shall be fully paid in cash; and it is agreed that this apparatus shall retain its personal character, and shall not become a fixture by being annexed or affixed in any manner to any land, foundation, or building of any sort, and that if it be placed on any mortgaged or encumbered premises or land, foundation, or building of any sort, it shall not be subject to such mortgage or encumbrance. Upon default in the [fol. 830] payment of any part of the purchase price, we shall have the right at our election to take possession of this apparatus, and remove the same without legal process, and to retain all payments previously made as compensation for its use and wear. At our election, you will execute and deliver a conditional sale agreement complying with the laws of the place where this apparatus is to be located.

The acceptance of your order constitutes a complete and binding contract which can not be modified or cancelled without written consent of both parties.

No cancellation of this order will be entertained unless you agree to pay us within thirty days from date of your written request for cancellation, all cancellation charges, including all expenses incurred in connection with the sale and engineering, all expenses for shop labor and material incurred up to that time in producing the apparatus covered by this contract, plus 10% charges.

This proposal is in no way binding upon us until countersigned at our home office. When accepted and countersigned, this proposal and attached specifications will con-

tain and constitute the entire agreement with us, superseding all previous understandings regarding this apparatus, and is an indivisible contract of sale. All representations relative to this apparatus relied upon by you in accepting this proposal are specifically set forth herein.

The said parties for themselves, their successors, executors, administrators and assigns do hereby agree to the [fol. 831] full performance of the covenants herein contained.

JOHN WALDRON CORPORATION

By .....

.....(Title)

Accepted this .....day of .....19...

.....

By .....

.....(Title)

Countersigned this .....day of .....19...

JOHN WALDRON CORPORATION

By .....

.....(Title)

PLAINTIFF'S EXHIBIT No. 60

Follow-Up Copy

Order A-60236

To
Waldron Corp.
New Brunswick,
N. J.

Date 8/17/33
Req. No. K-1597
Terms
Due Our Plant Confirming

Mark Goods Highlandtown Plant—Dept. Appro. 1414 Goebel
Ship Via

---

1 Complete coating, drying, slitting and rewinding installation for Thermo-plastic coating aluminum foil and slit into 1" wide coils as quoted and proposed 8/11/33 including chill roll (at an extra of $382.00)

$10652.00
FOB Shipping Pt.
Confirming

BLANK

PAGE

[fols. 832-844] PLAINTIFF'S EXHIBIT No. 64

636

A. K. KELLER.

BOTTLE SEAL ASSEMBLING MACHINE.

APPLICATION FILED APR. 18, 1912.

1,081,505.

Patented Dec. 16, 1913.

7 SHEETS—SHEET 1.

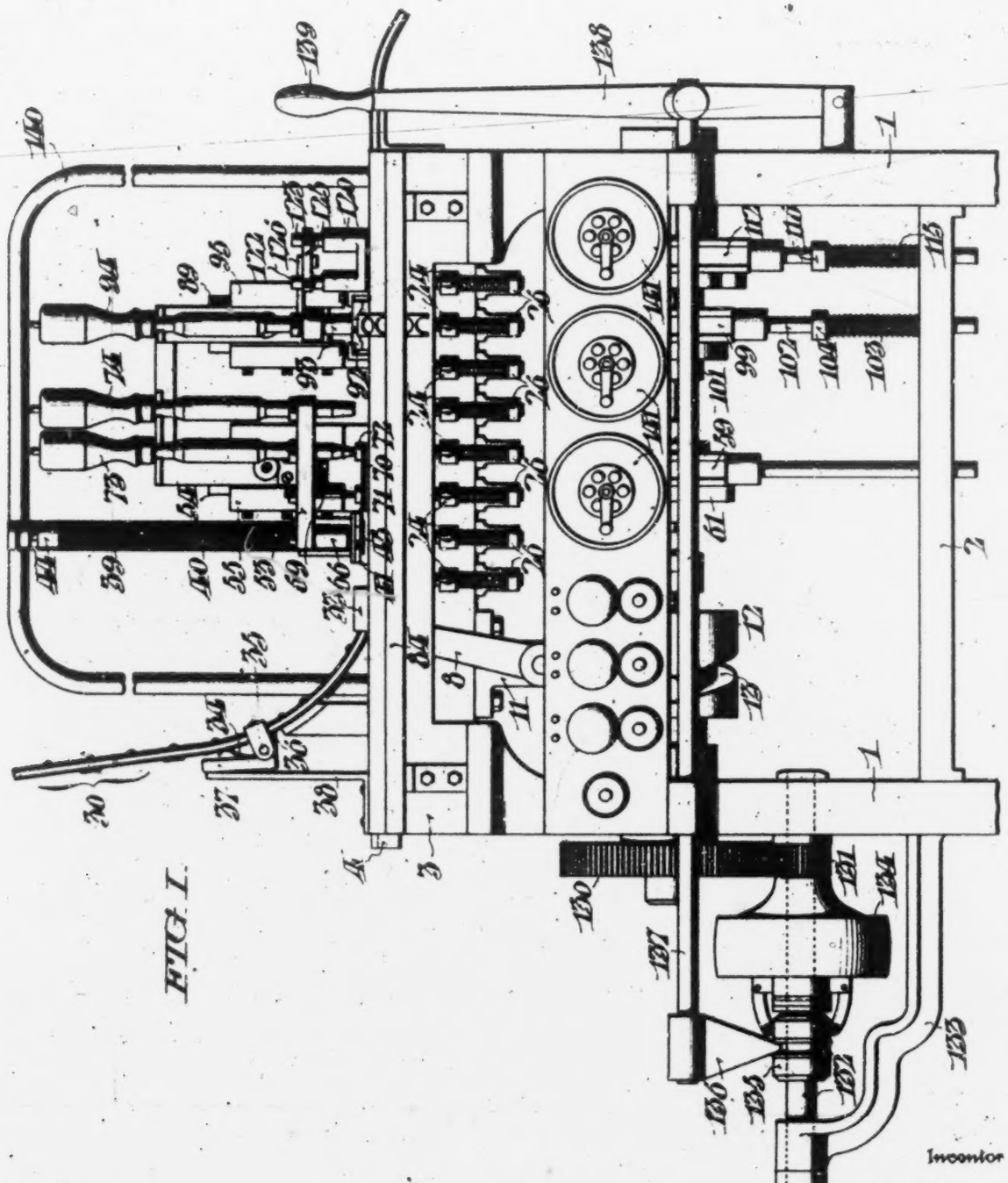


FIG. 1.

Witnesses
John C. Bergner
James H. Bell

Inventor
Albert K. Keller,
by Thurston & Page
Attorneys

BLANK

PAGE

637

A. K. KELLER.

BOTTLE SEAL ASSEMBLING MACHINE.

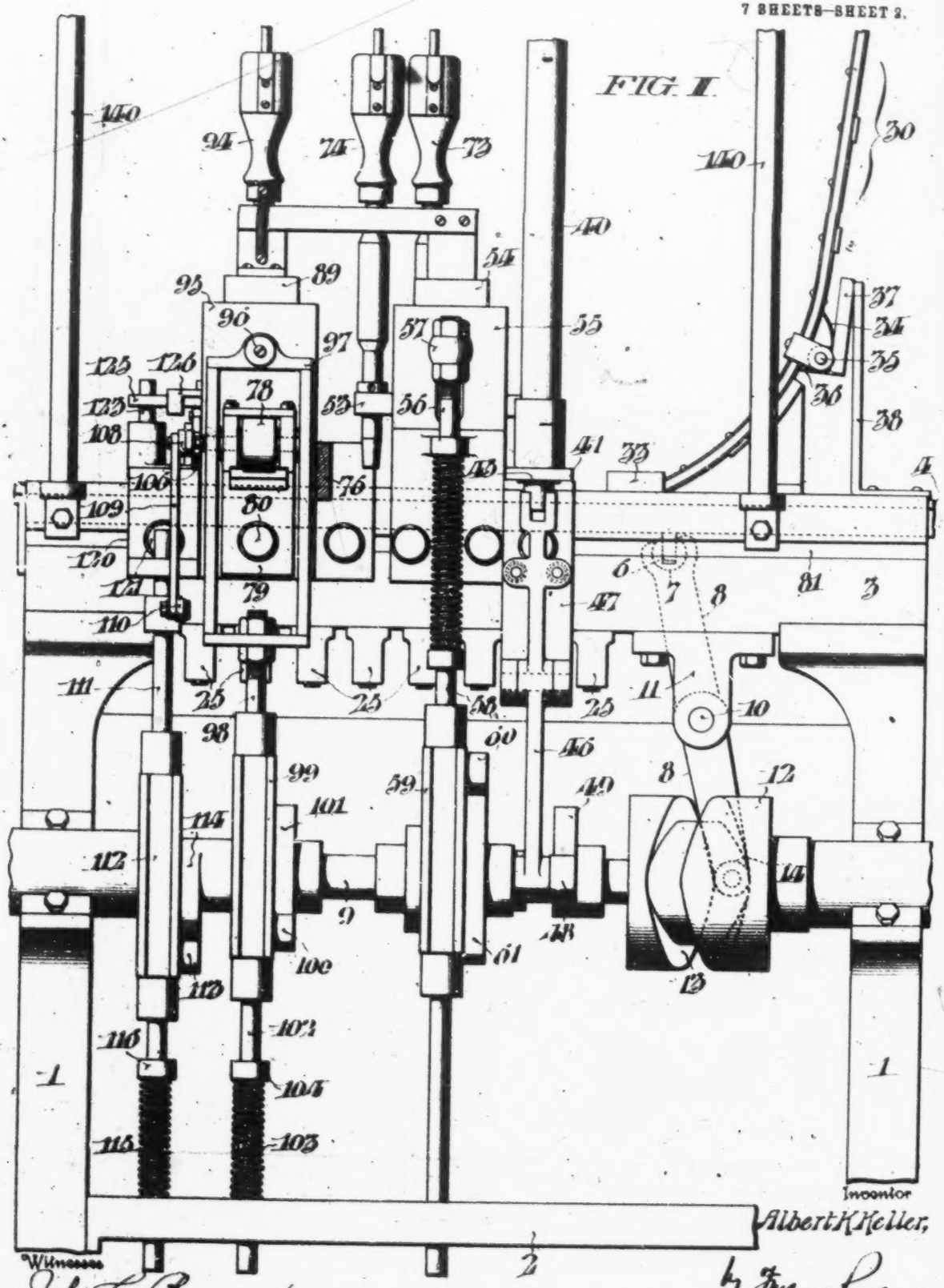
APPLICATION FILED APR. 18, 1912.

1,081,505.

Patented Dec. 16, 1913.

7 SHEETS—SHEET 2.

FIG. 2.



BLANK

PAGE

638

A. K. KELLER.

BOTTLE SEAL ASSEMBLING MACHINE.

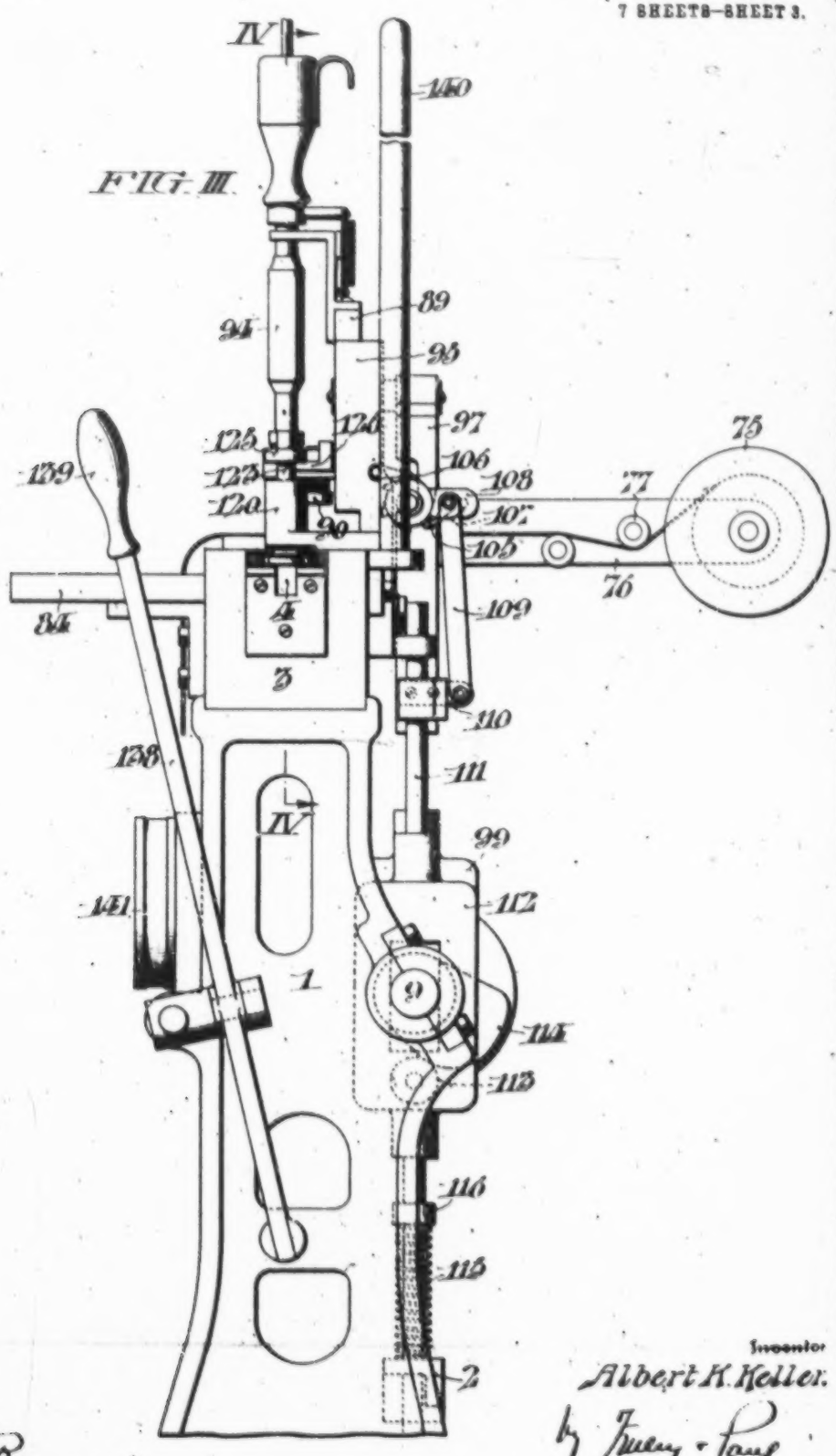
APPLICATION FILED APR. 18, 1912.

1,081,505.

Patented Dec. 16, 1913.

7 SHEETS—SHEET 3.

FIG. III.



Witnesses
John C. Bergner
James H. Bell.

Inventor
Albert K. Keller.
by Fulley & Paul
Attorneys

BLANK

PAGE

639

A. K. KELLER.

BOTTLE SEAL ASSEMBLING MACHINE.

APPLICATION FILED APR. 18, 1912.

1,081,505.

Patented Dec. 16, 1913.

7 SHEETS—SHEET 4.

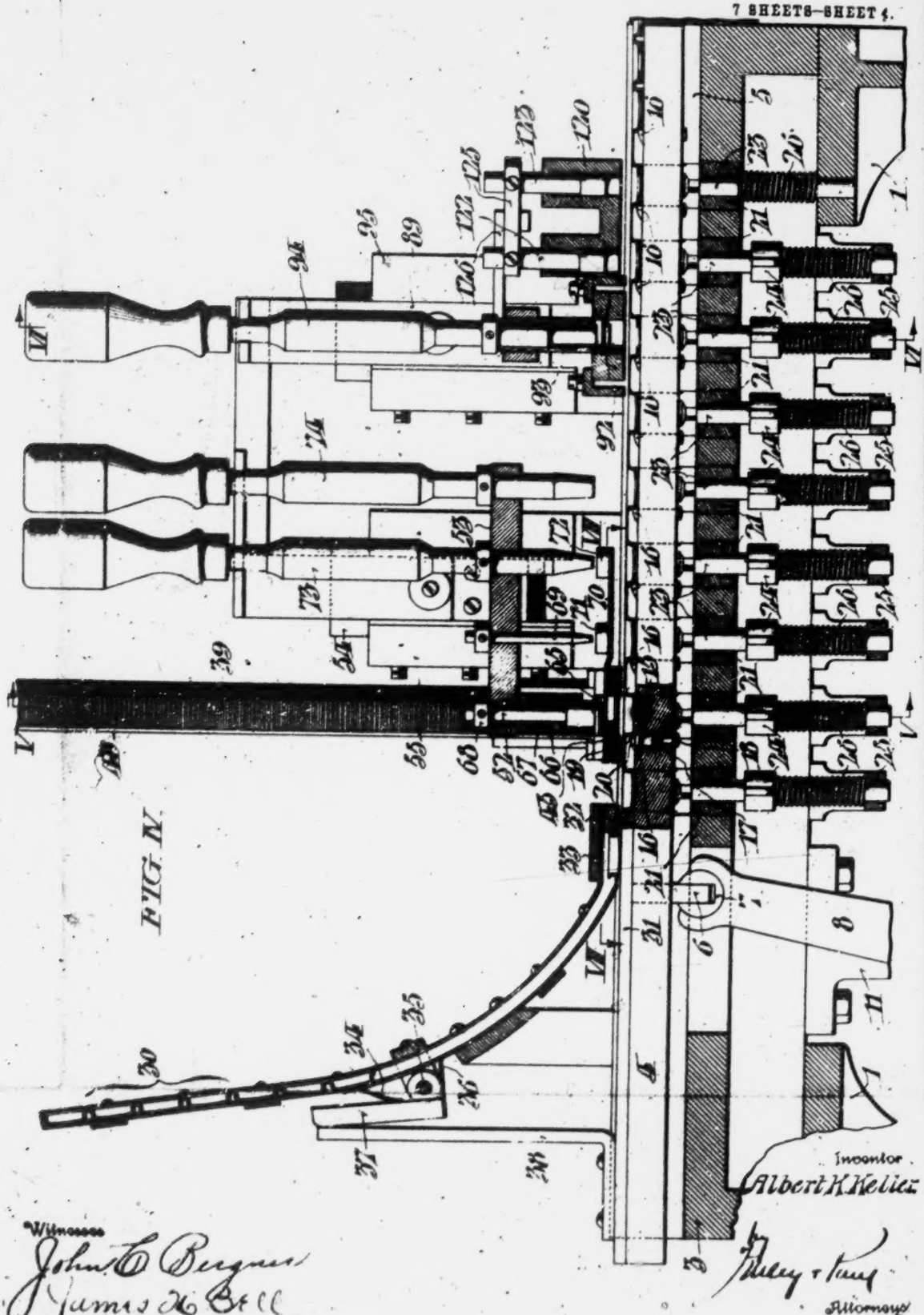


FIG. IV.

Witnesses
John C. Bergner
James H. Bell.

Inventor
Albert K. Keller
by Riley & Young
Attorneys

BLANK

PAGE

640

A. K. KELLER.

BOTTLE SEAL ASSEMBLING MACHINE.

APPLICATION FILED APR. 18, 1912.

1,081,505.

Patented Dec. 16, 1913.

7 SHEETS—SHEET 5.

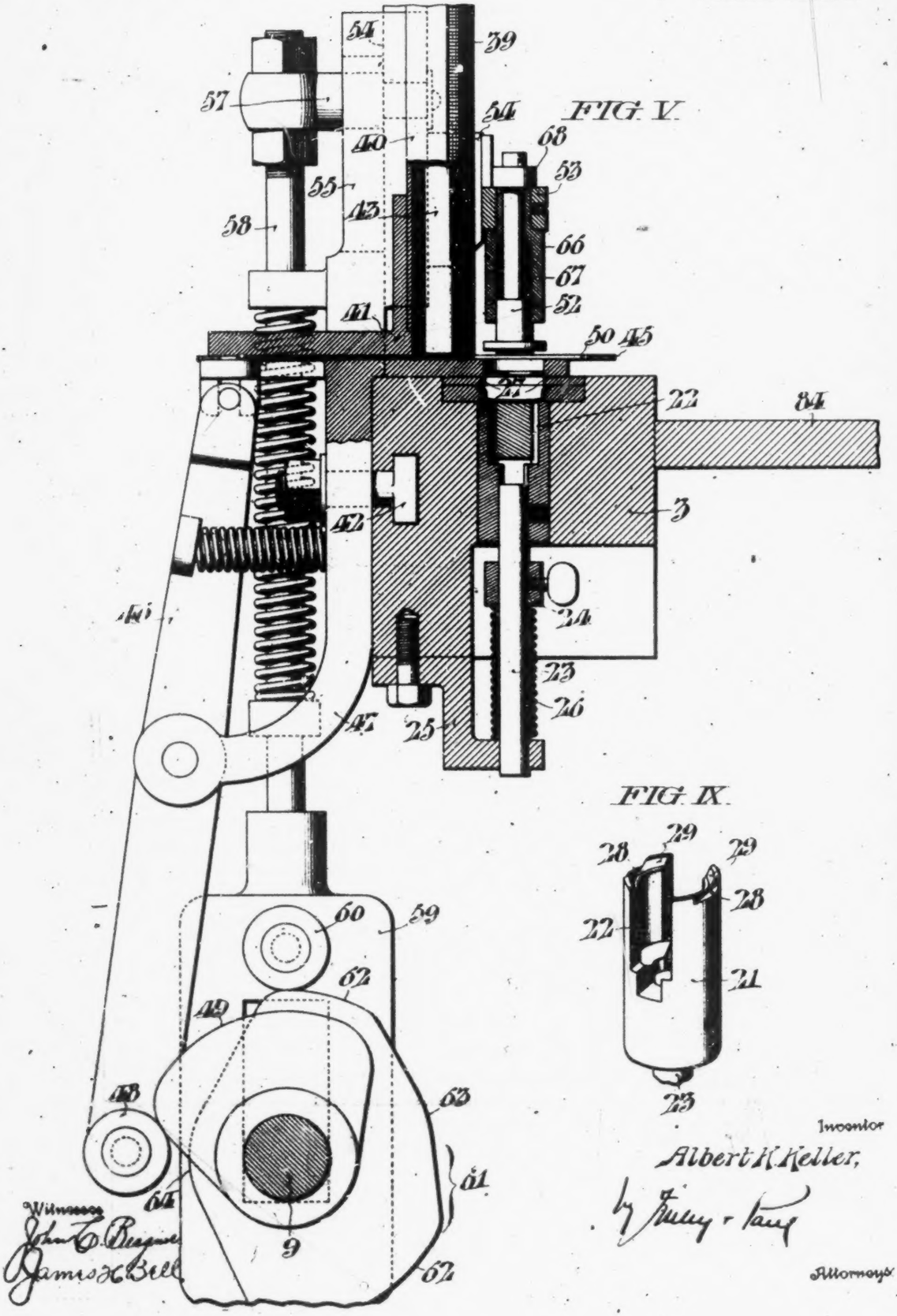


FIG. V.

FIG. IX.

Witnesses
John C. Regan
James X. Bell

Inventor
Albert K. Keller,
by Fulwider & Fulwider
Attorneys

BLANK

PAGE

641

A. K. KELLER.

BOTTLE SEAL ASSEMBLING MACHINE.

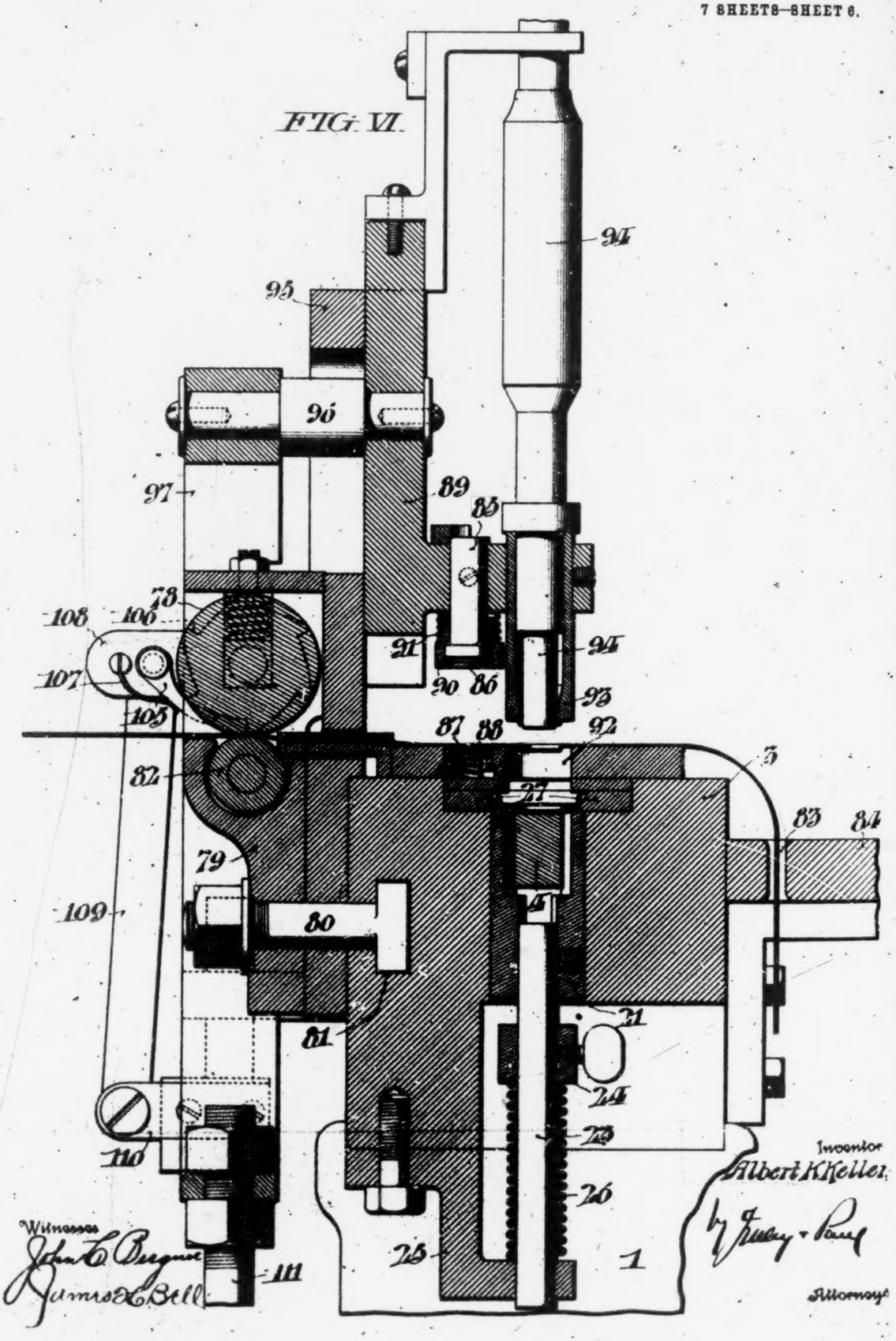
APPLICATION FILED APR. 18, 1912.

1,081,505.

Patented Dec. 16, 1913.

7 SHEETS—SHEET 6.

FIG. VI.



Witnesses
John C. Bergner
James L. Bell

Inventor
Albert K. Keller,
by Fulwider & Paul
Attorneys

BLANK

PAGE

642

A. K. KELLER.

BOTTLE SEAL ASSEMBLING MACHINE.

APPLICATION FILED APR. 18, 1912.

1,081,505.

Patented Dec. 16, 1913.

7 SHEETS—SHEET 7.

FIG. VII.

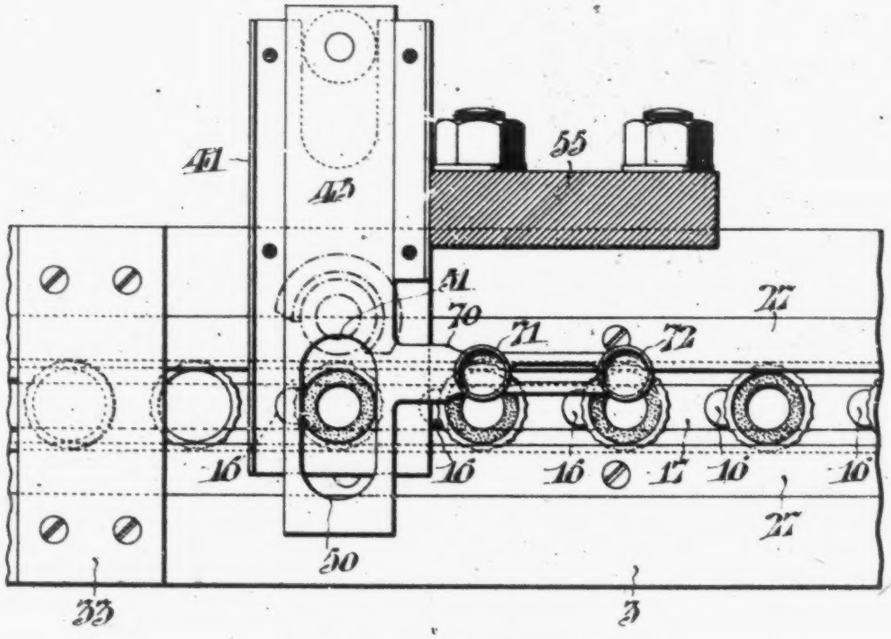
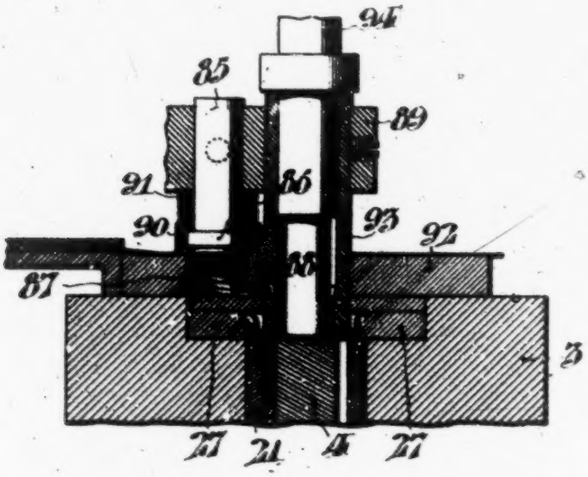


FIG. VIII.



Witnesses
John L. Bergmi.
James E. Bell.

Inventor
Albert K. Keller.
by Fraser & Fraser
Attorneys

UNITED STATES PATENT OFFICE.

ALBERT K. KELLER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO AMERICAN CORK AND SEAL COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF MAINE.

BOTTLE-SEAL-ASSEMBLING MACHINE.

1,081,505. Specification of Letters Patent. Patented Dec. 16, 1913.

Application filed April 18, 1912. Serial No. 691,642.

To all whom it may concern:

Be it known that I, ALBERT K. KELLER, of the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Bottle-Seal-Assembling Machines, whereof the following is a specification, reference being had to the accompanying drawings.

Bottle seal assembling machines have been made which include devices for placing a sealing gasket in a cap, and for securing the gasket to the cap by placing a retaining member therein, which retaining member is cemented to the cap.

An object of the present invention is to provide a machine of the above character, wherein the retaining member may be soldered to the metal cap.

A further object of the invention is to provide an assembling machine which consists of a plurality of stations for placing the gasket in the cap and securing a retaining member to the cap for holding the gasket in place, which machine includes devices for feeding the cap intermittently from one station to another, together with devices for holding the cap at each station during the operation thereon.

A further object of the invention is to provide means for supplying acid to a reciprocating acid applying plunger, and also to apply solder to a reciprocating soldering iron, which soldering iron and acid applying device are so timed as to contact with a cap placed underneath the same, for supplying and spreading solder on the cap, which is subsequently used in securing the retaining member to the cap.

A further object of the invention is to provide combined means for cutting out a retaining member and for applying the same to the cap, which applying means includes a heated iron which operates to solder the retaining member to the cap.

These and other objects will in part be obvious, and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration one embodiment of the invention, Figure I, is a front elevation of a machine embodying my invention. Fig. II, is a rear elevation of a portion of a machine with certain of the parts in section. Fig. III, is a view of the right hand end of the machine, as viewed in Fig. I. Fig. IV, is a longitudinal sectional view along the line of the feed bar, a portion of the feed bar being shown in section, and is indicated at IV, IV in Fig. III. Fig. V, is a transverse section on the line V, V, of Fig. IV. Fig. VI, is a transverse section on the line VI, VI, of Fig. IV. Fig. VII, is a sectional view on the line VII, VII, of Fig. IV. Fig. VIII, is a detail in section, similar to parts of Fig. VI, showing the retaining member applied to the cap. Fig. IX, is a perspective view of the cap holding chuck.

The invention consists generally of a supporting frame on which is mounted a reciprocating feed bar, which feed bar operates to convey the caps through the machine from one station to another, where the cap is successively operated upon to place therein a sealing gasket, and a retaining member therefor. A chuck is located at each station for receiving and holding the cap during all operations thereon. At the first station the gasket is placed over the cap and is forced into the same. At the second station, acid is applied to the metal of the cap at the center thereof. At the next station a drop of solder is applied to the cap. At the fourth station, the solder is spread on the cap. As herein shown, the next station is an idle station. At the following station a retaining member is formed and applied to the cap, and the solder is heated so as to secure the retaining member to the cap. At the next two stations, as herein shown, plungers are applied to the retaining member for the purpose of pressing the same against the cap, and for the purpose of assisting in cooling the solder.

Referring more in detail to the drawings, the machine consists of a supporting frame, which is formed of side standards 1, 1, and a connecting bar 2. At the upper end of the standards is a supporting table 3, in which is reciprocated a feed bar 4 (see Fig. IV). The table 3, is provided with a centrally arranged slot 5, which extends longitudinally of the table throughout the length thereof. The feed bar 4, is rectangular in cross section, as shown in Figs. V and VI. The feed bar carries a downwardly projecting pin 6, which loosely engages a ball 7, in the upper end of a lever 8. Extending longitudinally of the frame is a driving shaft 9. The lever 8, is fulcrumed at 10, to a bracket 11, carried by the under face of the table 3. A

cylinder 12, having a cam groove 13, therein, is mounted on the driving shaft and the lever 8, is provided with a roll 14, which co-operates with the walls of the cam groove 13. As the driving shaft rotates, the feed bar will be reciprocated back and forth through the oscillations of the operating lever 8. The feed bar is provided with a plurality of spaced sockets 15. In each socket is located a yielding stop 16. This stop is normally spring-pressed upward by a spring 17. A screw 18, limits the upward movement of the stop. This stop is formed with a head having a square shoulder 19, on one face thereof, and a rounded face or shoulder 20, which extends from the shoulder 19, to the outer face of the other side of the stop. The purpose of this stop is to feed the caps along the table. When the shouldered face of the stop engages the cap, the cap will be moved therewith, while the tapered face of the stop will move underneath the cap and allow the bar to be retracted without moving the cap rearward therewith. As a means for holding the caps at each station, I have provided a supporting chuck 21, which is shown in detail in Fig. IX. This chuck consists of a cylindrical portion through which is cut a groove 22. The groove 22, is adapted to receive the feed bar and allow the feed bar to move freely through the same, as clearly shown in Figs. V, and VI. This chuck is mounted on the upper end of a stem 23. A collar 24, is carried by the stem. The lower end of the stem passes through an opening in a bracket 25, carried by the table 3. A spring 26, encircles the stem 23, and bears at one end against the collar 24, and at the other end against the bracket 25. This spring normally holds the chuck pressed upward.

The table is cut away at the top, and is provided with side plates 27. These side plates slightly overlap the opening formed in the table for the chuck 21, and said side plates engage stop shoulders 28, formed on the chuck. It will be understood that there is a chuck for each operating station, also a chuck for receiving the caps from the feed chute, and a chuck intermediate the solder applying station and the retainer applying station. In other words, the chucks are necessarily spaced a distance apart equal substantially to the length of reciprocation of feed stroke of the feed bar so that the caps are carried by the stops on the feed bar from one chuck to another, through the machine, the stops yielding to allow the feed bar to be retracted and the caps held by the chucks. Each chuck at its upper end is formed with tapered shoulders 29, which are adapted to receive the cap, and these shoulders form a pocket or seat in the chuck for the cap. The tapered shoulders will serve to center the cap at the operating station.

The caps are fed to the feed bar from a chute 30. This chute may be supplied in any desired way with the caps and is so positioned relative to the feed bar that when a cap is discharged therefrom, it will rest on the upper face of the feed bar. The feed bar at a point adjacent the point of receiving the caps is provided with a raised part 31, forming a shoulder 32. A housing 33, is located on the table at the lower end of the feed chute. A cap sliding down the feed chute will strike against the housing, and as the feed bar is retracted, said cap will fall on to the feed bar in front of the shoulder 32, so that when the feed bar moves forward, the cap will be carried to the first chuck, where it will be held by the chuck when the feed bar is retracted. On the next reciprocation of the feed bar, the first stop will slide underneath the cap, the spring for the stop yielding to allow the stop to slide underneath the same. As soon as the stop passes the cap, the spring will raise the stop so that the shoulder 19, of the stop will engage the cap on the next forward movement of the feed bar, and carry the cap to the next chuck. The caps are held supported in the feed chute by a retaining finger 34. This retaining finger is mounted on a rock shaft 35, which carries a second retaining finger 36. The shaft also carries an arm 37, which is positioned so as to contact with a bracket 38, which is rigidly fastened to the feed bar. When the feed bar moves forward, the bracket 38, striking the arm 37, will turn the rock shaft so as to cause the retaining finger 34, to engage a cap and support the caps in the feed chute while the cap beneath the one engaged by the retaining finger 34, will be released so that the same may pass down the chute to the housing 33, on the supporting table.

When the feed bar is retracted or moved in the opposite direction, the retaining finger 36, by gravity movement of the arm 37, will be moved across the passage in the chute and will sustain the column of caps. At the first station, the sealing gasket is applied to the cap. The sealing gaskets 39, as herein shown, are formed of cork and are disk-shaped, having a central opening therethrough. These caps are placed in a stack holder 40. The stack holder 40, is carried by a bracket 41, which is secured to the table by a T-head bolt 42, which may be adjusted in a T-slot in the rear of the table. The stack holder is open at the front side so that the gaskets are at all times accessible to the operator. A rod 43, extends centrally through the gaskets and is supported by the upper end of the chute, as clearly shown in Fig. I. A weight 44, freely slides on the rod and normally holds the gaskets pressed against the table at the lower end of the chute. A feed slide 45, moves underneath

the stack holder and is adapted to engage one gasket at a time and carry the same into position to be applied to the cap. This stack holder is directly in rear of the second chuck, and the feed slide moves in a direction transversely of the table, so that the gasket as it is carried forward, will be moved over the cap held by the second chuck. The feed slide 45, is reciprocated back and forth by a lever 46, which is pivoted to an arm 47, carried by the bracket 41. The lever at its lower end carries a roller 48, which coöperates with a cam 49, on the main shaft 9. This cam is so shaped as to move the feed slide forward and to give a dwell thereto at the forward end of its stroke and then to move the slide to the rear end of its stroke, where it is also given a short dwell. The feed slide, as clearly shown in Fig. VII, extends entirely across the feed bar and is formed with an oblong slot 50, which is shaped to receive the sealing gaskets, and the inner edge 51, of the opening engages the gaskets and carries the same forward over the cap. The gasket is carried into the cap by a plunger 52. This plunger is mounted on a cross head 53, which is secured to a slide 54. The slide 54, is mounted for vertical movement in the supporting bracket 55. Said bracket is provided with a slot 56, and a lug 57, carried by the slide 54, extends through said slot.

A rod 58, is secured to the lug 57, and is adapted to reciprocate in suitable bearings carried by the bracket 55. The lower end of the rod is formed with a slotted head 59, which engages the main shaft 9, and the rod is thus guided in its vertical movements by said main shaft. A roller 60, carried by the slotted head 59, coöperates with a cam 61, on the main shaft 9. This cam 61, is constructed with two high portions 62, and two lower cam portions 63, and 64. It will be apparent from this construction, that the slide with the plunger 52, will be raised by the portion 62, to its extreme upper position, and will be lowered to its extreme lower position by the portion 64, and to an intermittent position by the portion 63. The purpose of this full and part stroke of the slide will be apparent when the acid-applying and solder-applying devices are described. This forward movement of the slide causes the plunger 52, which is formed with a head 65, to engage a gasket fed underneath the same by the feed slide 45, and carry the gasket down into the opening in the table directly above the second chuck. The plunger 52, is mounted in a barrel 66, and is spring-pressed downward by a spring 67. A collar 68, limits the downward movement of the plunger. This yielding movement of the plunger allows for any irregularities in the thickness of the cap, so that the gaskets will be seated in the cap with a yielding pressure. The first or part stroke of the plunger carries the gaskets to the position shown in Fig. V, while the second or full stroke of the plunger carries the gasket into the cap.

After the gasket has been placed in the cap, the cap is conveyed by the feed bar to the next chuck, where the acid is applied to the cap. This is accomplished by the acid-applying rod 69, which is carried by the cross-head 53. This rod will, therefore, reciprocate with the cross-head and will be given a part stroke and a full stroke in the same manner as said cross-head imparts movements to the plunger 52. The feed slide 45, is formed with a laterally projecting arm 70, which carries an acid cup 71. This arm is also provided with a solder cup 72. A soldering iron 73, which as is herein shown, is of the usual electrically heated hand type, is also adapted to be mounted in the cross-head 53. The slide 54, is provided with a support for the upper end of the soldering iron. A second electrically heated spreading iron 74, is mounted in the cross-head 53. These two soldering irons 73, and 74, will move up and down with the cross-head in the same manner as the acid-applying rod 69. The movement of the feed slide is so timed that on the part stroke of the cross-head, caused by the portion 63, of the cam 61, the feed slide is at the forward end of its stroke, and the acid cup and solder cup are consequently underneath the acid-applying rod and the soldering iron. This part stroke of the cross-head will cause the acid-applying rod to dip into the acid, and will also cause the soldering iron to dip into the solder in the soldering cup. As the cross-head is raised, a drop of solder and also a drop of acid will be held on the end of the soldering iron, and acid-applying rod, respectively. On the next down stroke of the cross head, which is a full stroke, the acid-applying rod will be carried down into contact with the inner face of the cap, and acid will be thereby applied to the cap. On this same stroke, the soldering iron will be carried down into contact with the cap located in the next succeeding chuck, and a drop of solder will be applied to the acid treated surface of the cap. On this stroke the spreading iron will also engage the solder in the cap carried by the chuck underneath the same. It will be understood that while the plunger, the acid-applying rod, and the soldering iron operate simultaneously, that each of these elements are operating upon a separate cap held by the chuck underneath the same. After the solder has been applied to the cap, the cap is moved forward another step to a holding chuck, which, as herein shown, is an idle station. From this idle station, the cap is carried to a station where the retaining member is ap-

plied to the cap. This retaining member consists of a disk of thin metal which is crowned so as to feed or enter the center opening in the sealing gasket, and is also provided with a flange which overlaps the gasket so that when the retaining member is soldered to the cap, the gasket will be securely held by said retaining member.

The retaining member is constructed and applied to the cap in the following manner: A sheet of metal from which the retaining members may be made, is wound on a spool 75, (see Fig. III) which is mounted in a bracket arm 76, carried by the supporting table. The strip of metal passes underneath tension rolls 77, and is led across the table in a direction at right angles to the line of reciprocation of the feed bar. A feeding roller 78, is yieldingly mounted on a supporting bracket 79, which is secured to the table 3, by a T-head bolt 80, which is adjustable in a T-slot 81, extending longitudinally of the table. Coöperating with the roll 78, is a roll 82. The strip of metal passes between said rolls and is led through a suitable opening in the bracket across the table, and the waste metal in the strip passes over the front of the table down through an opening 83, in the bracket 84, at the forward side of the machine. The strip is first shaped so as to form a center projection adapted to fit within the central opening in the sealing gasket. This is accomplished by a plunger 85, (see Fig. VI). The plunger 85, is formed with a shaping head 86, and coöperating with the plunger is a yielding anvil 87. This anvil is mounted in the table, and is spring-pressed upwardly by a spring 88. The plunger or shaping die 85, is carried by a reciprocating cross-head 89. A sleeve 90, surrounds the stem of the die or plunger, and is held normally spring-pressed downward by a spring 91. The purpose of this collar is to strip the metal from the die, when the die is lifted from the metal strip.

When the cross-head 89, is reciprocated, the shaping die engages the strip and the anvil yields to allow the center portion to be projected by the die in the manner clearly shown in Fig. VIII. Upon the retracting of the die, the sleeve 90, will push the strip from the die and the anvil will lift the strip so that it may be moved forward directly over the chuck carrying the cap. The retaining member is cut from the strip by a cutting die 92. This cutting die coöperates with a male die member 93. This die is carried by the cross-head 89, and as the cross-head moves downward, the die will engage the strip and sever the retaining member therefrom, and the further downward movement of the die will carry said retaining member into engagement with the cap supported by the chuck underneath the same. This die 92, as shown in Fig. VI, is formed with a central opening therethrough. An electrically heated iron 94, is supported by the die member 93, and projects slightly beneath the end thereof.

When the die moves down so as to cut the retaining member from the strip, the heated iron will move with the die, and will engage the retaining member. When the retaining member is carried into the cap, the heated iron will be brought against the upper surface of the retaining member, and the heat of the iron will melt the solder on the cap, and cause the cap and retaining member to be firmly attached or soldered together. The cross-head 89, slides in suitable guides in a bracket 95. Said cross-head carries a stud 96, which stud is secured to the upper end of a yoke 97 (see Fig. II). The yoke 97, at its lower end, is attached to a rod 98, which is provided with a slotted head 99, which engages and is guided by the main shaft 9. Said slotted head carries a roller 100, which coöperates with a cam 101, on the main shaft. The lower end of the slotted head is connected to a rod 102, which reciprocates in the bar 2, carried by the frame. A spring 103, is located between the bar and a collar 104, on said rod 102. This spring normally presses the roller 100, into engagement with the cam 101, and holds the cross head raised. The cam operates to move the cross-head positively downward, so as to cause the shaping die and cutting die to operate upon the strip.

The feeding roll 78, for the strip of metal is intermittently rotated by a pawl 105, which engages ratchet teeth 106, carried by the feed roll 78. A spring 107, normally presses the pawl into engagement with the teeth of the ratchet. This pawl and the spring are mounted on an arm 108, which is pivoted concentrically of the roll and is oscillated by a link 109, which is pivoted to an arm 110, carried by the upper end of a rod 111. The rod 111, is mounted to reciprocate in a suitable bearing at the upper end, and in the cross bar 2, at its lower end. This rod carries a slotted head 112, in which is mounted a roller 113, which coöperates with a cam 114. A spring 115, bearing against the cross bar 2, and the collar 116, normally holds the rod 111, raised. The cams 114, and 101, are so timed that the feed roller is rotated to feed the strip beneath the shaping die and cutting die when the cross head 89, is raised.

Mounted in a bracket 120, secured to the table 3, by a bolt 121, are two cooling irons or plungers 122, and 123. These cooling irons are cylindrical in shape, and are adapted to enter the cap and press the retaining member and gasket against the cap. These irons not only press the parts into engagement while the solder is cooling, but through contact with the metal will aid in

conducting the heat away from the metal, and cooling the same. Said plungers are so spaced as to operate upon the caps retained by successive chucks. The plungers are united by a cross piece 125, and are adapted to drop into the caps under the influence of gravity. They are raised by means of a finger 126, which engages the under surface of the cross piece 125. The finger 126, is secured to the cross head 89, already mentioned. The caps after having the retainer secured thereto, are fed through the machine through the reciprocating movements of the feed bar.

The main shaft 9, carries a gear wheel 130, which meshes with a pinion 131, on a counter-shaft 132, mounted in the frame, and in a bracket arm 133. A combined friction clutch and driving pulley 134, is carried by the counter-shaft. Said clutch is controlled by a sliding collar 135, and an arm 136, which is carried by a rod 137. The rod 137, is secured to a lever 138, which is provided with a hand grip 139, positioned for easy access by the operator. A supporting bar or frame 140, is carried by the main table, and serves as a means on which the irons may be hung when removed from the machine, or from other places. The temperature of each iron is controlled by a separate electric rheostat 141. The operation of my device will be apparent from the above description. The caps are placed in the feed chutes and are fed one at a time to the feed bar which, as it reciprocates, conveys the caps from one chuck to another until the caps are presented to each one of the different operating stations. The sealing gaskets are fed one at a time above the caps at the gasket-applying station, and the gaskets are seated in the caps by a reciprocating plunger. At the next station acid is applied to the cap, after which solder is applied and spread on the cap, and then the cap is conveyed to the station where the retaining member is formed, shaped, and cut, and at this station the retaining member is placed in the cap and soldered thereto.

After the retaining member is attached to the cap, it is pressed against the cap and the parts cooled by the plungers operating thereupon.

It is obvious that minor changes in the details of construction and arrangement of parts may be made, without departing from the spirit of the invention as set forth in the appended claims.

Having thus described my invention, I claim:

1. In a machine of the class described, the combination of means for placing a sealing gasket in a cap; devices for applying solder to the cap; devices for forming and applying a retainer to the cap, and for soldering the same thereto.

2. In a machine of the class described, the combination of means for placing a sealing gasket in a cap; means for subsequently applying solder to the cap; means for forming and cutting a retainer and for placing the same in the cap; and means for heating the solder to secure the retainer to the cap.

3. In a machine of the class described, the combination with means for applying a gasket to a cap; devices for applying solder to the cap; devices for forming and applying a retainer to the cap and soldering the same thereto; and means for successively presenting a cap to the gasket-applying means, the solder-applying devices and the retainer forming and applying devices.

4. In a machine of the class described, the combination with means for applying a gasket to a cap; devices for applying solder to the cap; devices for forming and applying a retainer to the cap and soldering the same thereto; and means for successively presenting a cap to the gasket-applying means, the solder-applying devices, and the retainer forming and applying devices, said presenting means including a reciprocating bar and yielding stops carried thereby.

5. In a machine of the class described, the combination with means for applying a gasket to a cap; devices for applying solder to the cap; devices for forming and applying a retainer to the cap and soldering the same thereto; means for successively presenting a cap to the gasket-applying means, the solder-applying devices, and the retainer forming and applying devices, said presenting means including a reciprocating bar and yielding stops carried thereby, and yielding chucks for holding the caps from rearward movement with the feed bar.

6. In a machine of the class described, the combination of a gasket-applying station; a solder-applying station and a retainer forming and applying station; and means for feeding caps successively to said stations, said means including a reciprocating bar; stops carried thereby; and a yielding chuck located at each station for receiving and holding the cap.

7. In a machine of the class described, the combination of a gasket-applying station; a solder-applying station; and a retainer forming and applying station; and means for feeding caps successively to said stations, said means including a reciprocating bar for positively moving the caps from one station to another; yielding chucks at each station for holding the caps, said chucks including means for centering the caps at the stations.

8. In a machine of the class described, the combination of a gasket-applying station; a solder-applying station and a retainer forming and applying station, and means for feeding caps successively to said stations.

said means including a feed bar; means for reciprocating the feed bar; yielding stops carried by the feed bar for positively engaging and moving the caps from one station to another; and a yielding chuck at each station for engaging and holding the cap.

9. In a machine of the class described, the combination of a gasket-applying station; a solder-applying station and a retainer forming and applying station, and means for feeding caps successively to said stations, said means including a feed bar; means for reciprocating the feed bar, yielding stops carried by the feed bar for positively engaging and moving the caps from one station to another; and a yielding chuck at each station for engaging and holding the cap, said yielding chuck having means for engaging and centering the cap at the station.

10. In a machine of the class described, the combination of a gasket-applying station; a soldering station; a retainer forming and applying station; a reciprocating feed bar; a yielding chuck located at each station, each of said chucks having a slot formed therein, in which said bar reciprocates; springs for normally pressing said chucks upward, and stops for limiting the upward movement of the chucks.

11. In a machine of the class described, the combination of a gasket-applying station; a soldering station; a retainer forming and applying station; a reciprocating feed bar; a yielding chuck located at each station; each of said chucks having a slot formed therein, in which said bar reciprocates; springs for normally pressing said chucks upward, and stops for limiting the upward movement of the chucks, said feed bar having a plurality of yielding stops adapted to engage the caps and positively carry the same from one chuck to another.

12. In a machine of the class described, the combination of a feed bar for feeding caps step by step through the machine; means for applying a gasket to the cap, including a gasket stack holder; a reciprocating feed slide; a plunger for engaging the gaskets and placing the same in the caps; an acid applying rod, and a soldering iron; and means for simultaneously reciprocating said plunger, said rod, and said iron.

13. In a machine of the class described, the combination of means for feeding caps; means for applying a gasket thereto; and means for applying solder to the cap, including an acid-applying rod; a soldering iron; an acid cup; a solder cup; and means for causing said acid-applying rod and said soldering iron to dip into said cups prior to the engagement of the caps by the acid rod and soldering iron.

14. In a machine of the class described, the combination of means for feeding caps; means for applying a gasket thereto; and means for applying solder to the cap including a soldering iron; a solder cup; means for giving said iron a long and short reciprocation; and means for moving the solder cup underneath said iron at said short reciprocation.

15. In a machine of the class described, the combination of a frame; a table supported by said frame and having a longitudinal groove therein; a cap feeding bar reciprocating in said groove; means for reciprocating said bar; means carried by said bar for positively feeding caps step by step along said table; a yielding chuck for engaging and holding the caps; a gasket-applying means for inserting a gasket in a cap, an acid-applying rod for applying acid to a cap, a soldering iron for applying solder to the cap, a spreading iron for spreading the solder on the cap, a forming die, and a cutting die for forming and placing a retainer in the cap; and a soldering iron for heating the solder to secure the retainer to the cap.

16. In a machine of the class described, the combination of a frame; a table supported by said frame and having a longitudinal groove therein; a cap feeding bar reciprocating in said groove; means for reciprocating said bar; means carried by said bar for positively feeding caps step by step along said table; a yielding chuck for engaging and holding the caps; a gasket-applying means for inserting a gasket in a cap; an acid-applying rod for applying acid to a cap; a soldering iron for applying solder to the cap; a spreading iron for spreading the solder on the cap; a forming die, and a cutting die for forming and placing a retainer in the cap; a soldering iron for heating the solder to secure the retainer to the cap; and reciprocating plungers for engaging the retainer for pressing the same against the cap after the same is soldered thereto.

17. In a machine of the class described, the combination of means for placing a sealing gasket in a cap, means for subsequently applying solder within the cap, means for forming and cutting a retainer and placing the same in the cap, and means for heating the solder to secure the retainer to the cap.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this eighth day of April 1912.

ALBERT K. KELLER.

Witnesses:
JAMES H. BELL,
E. L. FULLERTON.

[fol. 845] PLAINTIFF'S EXHIBIT No. 67

The Crown Cork and Seal Co.,
Baltimore, U. S. A.

January 20, 1932.

To: Dr. Warth.
From: M. Stover.
Subject: Al. Spot, Thermoplastic Cement.

A strip of Aluminum foil was coated in the Laboratory with Thermoplastic Cement, Du Pont 4620, sent to the 3rd Floor Assembling Machines. The stick was very good, and the spots well centered.

A few bottles of assorted beverages were put up under same and are now in the Dark Room.

(Signed) M. Stover.

The Crown Cork and Seal Co.,
Baltimore, U. S. A.

April 12, 1932.

To: Dr. Warth.
From: M. Stover.
Subject: Non Metallic Spot Crowns.

Five bottles of Canada Dry Ginger Ale were put up under the Glazed Paper Spot Crowns with Thermoplastic Cement, and five bottles with crowns taken from regular production with gutta percha adhesive. These are for direct comparison to show efficacy of Thermoplastic vs. Gutta Percha.

(Signed) M. Stover.

[fol. 846] The Crown Cork and Seal Co.
Baltimore, U. S. A.

April 20, 1932.

To: Dr. Warth.
From: M. Stover.
Subject: Thermoplastic Cement.

It has been found that 1 gallon of Thermoplastic Cement will coat 600 sq. ft. of varnished paper or foil to sufficient thickness to give a good adhesion and run well on the assembling machines on the Third Floor.

(Signed) M. Stover.

1 gal costs $2.50.

600 sq. Ft.
144

144 ÷ 86400 sq. in. 600 gross/gal.
864

600/2.500 $.004 per gross.

.0012

.0052 about .006

cost coat 1¢ sq. yd. = 1296 sq. in.

144 ÷ 1296 8 gross = .010
1152 1 gross = .0012
144

[fol. 847] The Crown Cork and Seal Co.,

Baltimore, U. S. A.

August 19, 1932.

To: Dr. Warth.
From: M. Stover.
Subject: Shellac Coated Paper, Irvington Varnish & Insulator Co.

Two bottles of Canada Dry Ginger Ale put up 3-17-32 under Irvington Shellac Coated Paper, Thermoplastic Cement were opened. The spots were in very good condition, but the Canada Dry Ginger Ale had a pronounced paper taste.

(Signed) M. Stover, Chemical Department.

The Crown Cork and Seal Co.,

Baltimore, U. S. A.

August 19, 1932.

To: Dr. A. H. Warth.
From: M. Stover.
Subject: Glazed Paper Spots.

Two bottles of Canada Dry Ginger Ale, one with Regular Glazed Paper Spot taken from the Third Floor and the other assembled with Thermoplastic Cement were opened.

[fol. 848] Bottled 4-12-32. Contrary to the usual run of these spots the Regular from the Third floor showed the spot to be in better condition than the Thermoplastic assembled disc. The Ginger Ale in each case had full flavor.

(Signed) M. Stover.

The Crown Cork and Seal Co.,

Baltimore, U. S. A.

August 25, 1932.

To: Chemical Director, A. H. Warth.
From: M. Stover.
Subject: Tin Spot Thermoplastic.

A bottle of white rock water put up 4-20-32 under tin spot with thermoplastic adhesive was opened. The tin spot was cut by the sharp edge of the locking ring, and the composition cork blackened. White Rock flavor O. K.

(Signed) M. Stover.

The Crown Cork and Seal Co.,
Baltimore, U. S. A.

October 20, 1932.

To: Dr. Warth.
From: M. Stover.
Subject: Parchment Spot Crowns.

Using 50 lb. Parchment Paper, a few Crowns were spotted using Gutta Percha and Thermoplastic as the adhesive.
[fol. 849] Three of each of these were placed on Arrow Special and pasteurized. Two were placed on White Rock Water.

(Signed) M. Stover.

Three of each of these Crowns were placed on Coca Cola.

PLAINTIFF'S EXHIBIT No. 68

May 11, 1932.

Mr. J. W. Cleaveland, Manager, Eastern Industrial Sales,
E. I. du Pont de Nemours & Company, Parlin, New Jersey.

DEAR SIR:

In reply to your letter of May 9th, we must confess that we have done nothing in particular with the V-7660 Tin

Decorating Varnish. The 4620 Thermoplastic Cement is active, as is also the E-1-1393 Water Repellent Lacquer.

We naturally hold to those materials which turn out well and it very often takes some time before we can see our way clear in introducing them for practical production purposes. It might interest you to know that the step of introducing a material from the Laboratory to the plant has become increasingly difficult with the very large number of materials offered by the trade. Very often when they are introduced it is necessary to meet some specific problem. A good example was the Du Lux Varnish which we had very little use for to begin with, and Du Lux Varnish is gradually going into production for coating paper as well as tin ma-
[fol. 850] terials, and giving us a little better result than we could obtain with any other varnish.

Yours very truly, The Crown Cork and Seal Company, A. H. Warth, Chemical Director.

AHW/ms.

PLAINTIFF'S EXHIBIT No. 69

May 9, 1933.

Mr. Linn Case, Sales Manager, John Waldron Co., New Brunswick, N. J.

DEAR MR. CASE:

I am writing you at the direction of Mr. Foley of the Du Pont Co. A Mr. Goebel and myself expected to visit you last week. Mr. Foley, however, informed me that you would require the foil in width not greater than 19½" and would on a 3" I. D. core. Our stock here was 24¾" and not of this core. We have, however, ordered 18½" wide foil to be wound on 3" I. D. cores, and in lengths of 250 yds. This material will be here in about one weeks time. Just as soon as it arrives we shall get in touch with you relative to proposition of coating same.

We have successfully coated foil here for the past several years but not on a production basis, and our interest in the matter has been probably explained to you by Mr. Foley.

Yours very truly, The Crown Cork and Seal Company, A. H. Warth, Chemical Director.

Job No. 1929 Supreme Court Record No. 72

[fol. 851] PLAINTIFF'S EXHIBIT No. 70

May 25, 1933.

Mr. Linn B. Case, John Waldron Corporation, New Brunswick, N. J.

DEAR MR. CASE:

The material which we coated at New Brunswick was slit and spooled here and run off on the machine. The product obtained was quite satisfactory. We of course, had some interruptions on the machine due to the fact that in the change from thinner to thicker coating, the coating was not quite continuous.

Just at the present we are arranging for the assembled Crowns to be put through a rough test to determine their safety for use in hoppers of trade machines.

There are several matters which Mr. Goebel and I would like to discuss with you before we make our next trip to New Brunswick, and would suggest that you stop over at Baltimore for the purpose, any time during the week except Saturday. Should the writer be out of town you would be able to see Mr. Goebel.

With kind regards.

Yours very truly, The Crown Cork and Seal Company, A. H. Warth, Chemical Engineer.

AHW/ms.

[fol. 852] PLAINTIFF'S EXHIBIT No. 71

June 23, 1933.

John Waldron Corporation, New Brunswick, New Jersey.

Attention Mr. L. B. Case

DEAR MR. CASE:

We have your letter of June 17th, and have arranged with Mr. Goebel to motor to New Brunswick on June 27th. Presumably we will reach your plant in the very early afternoon as we did the last time.

Will you kindly inform Mr. Foley or Mr. Heins so that they or their representatives may be present when we are making the run. They will supply the coating material, and Mr. Goebel and I will bring along the two rolls of foil.

Should you not be able to have things fully arranged for us kindly wire me on Monday, June 26th.

Yours very truly, The Crown Cork and Seal Company, A. H. Warth, Chemical Director.

AHW/ms.

[fol. 853] PLAINTIFF'S EXHIBIT No. 72

July 28, 1933.

Thermoplastic Coated Foil

The second run of coating aluminum foil with Thermoplastic Cement was made at the Waldron Co., June 27, 1933.

The foil was .002" thickness, 18" width, and 250 yards in length; sufficient to produce 17 spools of 1" width and similar length. One spool will yield about 70 gross of Spot Crowns.

Data on Run of June 27, 1933:

Foil: Alcoa	.002" thick
Width	18"
Length	250 yards
Dried Sheet	.0032" to .0036" thick
Dried Coating	.0012" to .0016"
Wet Coating	.0043" to .0050"
Temp. Zone No. 1	165° F.
" " No. 2	190° F.
" " No. 3	210° F.
" " No. 4	150° F.
Speed of Sheet	18 ft. per min.
Time to coat	40 minutes
Capacity	10 rolls per 8 hr. day
Gross equivalent (10 rolls)	12,000
Cement required	3 gallons per roll
Cost of Cement	1.50 per gallon
Material per gross	0.0038
Direct labor per gross	0.0006
Overhead (estimated)	0.0018
Total cost of coating	0.0062

[fol. 854] Estimated Cost Coating 27½" Foil:

Foil: Aluminum. 002" thick	27½" wide
Length	500 yards
Speed Sheet	28 ft. per min. (estimated)
Time to Coat	1 hour
Capacity	8 rolls per 8 hr. day
Spools 500 yard length	208 per day
Gross per spool	140
Total grossage	29,000 per 8 hr. day
Material per gross	.0038
Labor and overhead	.0020
Total cost of coating	.0058

About two 50 gallon drums of Thermoplastic Cement would be required for the days product.

(Sgd.) A. H. Warth, Chemical Director.

AHW/ms.

PLAINTIFF'S EXHIBIT No. 73.

August 30, 1920.

Mr. A. H. Warth, Chemical Engineer.

Subject: Resistance Paper

An investigation was started August 5th, 1920 to determine the method and materials for making Resistance Paper. The following information has been obtained;

[fol. 855] A Resistance Paper was made which was remarkably similar in properties to the product which we purchase. The formula used for making this paper follows:

Boiled Linseed Oil	85 parts
Process Varnish	50 "
Golden Black	10 "

The Process Varnish and the Golden Black were heated to drive off the solvent. When effervescence ceased the Boiled Linseed Oil was added and the whole heated to 400° F. The paper was dipped in the liquid and held submerged until effervescence ceased. The excess liquid was drained

516

from the paper and the paper was baked one half hour at 150° C. The paper had a very slight tack which could not be removed by continued baking, but disappeared on seasoning 21 days.

A. A. Eisenberg, Factory Chemist.

AAE-S.

(Here follows 1 photo, side folio 856)

9516

3 SHIPPER'S COPY

The Crown Cork and Seal Co.

BALTIMORE, MARYLAND, U. S. A. CHARGE MEMO 232

192

Shipping Order No 91950

Your Order No. 4/13/27

Date Ent'd

Ordered by G M

F. D. O. No. Date

Qty. Exp.

Ship on

Priced by

Price Checked

Drawn from Stock and Checked by

Inspected by

Checked by

Packed by

Shipped by

MAY 5 1927

Postage

Weight

By

SOLD TO CROWN CORK & SEAL CO.

ADDRESS CITY SALES HIGHLANDTOWNS

CITY

SHIP TO

SHIP VIA

DOCKET DIVISION JUN 16 1932 Dept. Patent Office

CREDIT — TERMS

Credit O. K.	O. Ck. or C. O. D.	Date
Date		

STOCK CHECK	LOCATION	QUANTITY ORDERED	QUANTITY SHIPPED	DESCRIPTION	CATALOG NUMBER
		10 90		GR. DOUBLE LACQUERED CANAN WITH CLOSED PAPER SPOT	

F&R BURROUGHS BROS.
BALTO. MD.

Attention Mr. Sutherland

Two M 7 Lbs

Ship 5/7

United States District Court
Eastern District of New York
Pltf Exhibit 74 in evidence
Date May 15 1931
Clerk
Deputy Clerk

NOTE—"QUANTITY SHIPPED" IS THE SAME AS "QUANTITY ORDERED EXCEPT WHERE OTHERWISE NOTED

Received from THE CROWN CORK AND SEAL CO., in good order and cond... per Wm Tracy 5/5/27.

PLAINTIFF'S EXHIBIT No. 74

656A

856

BLANK

PAGE

[fol. 857] PLAINTIFF'S EXHIBIT No. 75

June 30, 1927.

Production Department, Wm. Sutherland.
Chemical Director, A. H. Warth.
Burroughs Bros., Baltimore, Md.

We have been waiting months to hear the results on Glazed Paper Spot Crowns shipped to Burroughs Bros. and have asked Mr. Lindsay for report. As I recall we made up 50 gross against their order and these Crowns were shipped sometime ago.

Mr. Lindsay is under the impression that we were months getting the paper for the Crowns and that the matter was dropped and the Crowns were not shipped. Will you please advise when we received their order and also when it was shipped.

(Signed) A. H. Warth, Chemical Director.

AHW-S.

[fol. 858]

July 1, 1927.

Chemical Department, C. J. Parker.
Chemical Director, A. H. Warth.

Glazed Paper Spot Canax Crowns

Questions concerning the efficiency of Glazed Paper Spot Crowns on beverages are being asked by our Sales organization.

We have but one practical test on outside. This was in sealing Citrate of Magnesia. The Spot Crown has proven satisfactory for this purpose.

It will be necessary to extend our tests, particularly to Beer and Ginger Ale. I am ordering these beverages for the purpose. Please transfer sample Crowns to beverages when latter come in. As I recall it was tried on White Rock and Canady Dry and did not prove satisfactory for these beverages. The report on Canada Dry came from that firm.

(Signed) A. H. Warth, Chemical Director.

AHW-S.

(Here follow 4 photos, side folios 859-862)

7434

3 SHIPPER'S COPY

The Crown Cork and Seal Co.

BALTIMORE, MARYLAND, U. S. A.

67371

United States District Court 192

Eastern District of New York

Exhibit 76 in evidence

SOLD TO MACOMBER ORCHARD CO.

Date 7-27-1932 SONORA CALIF.

ADDRESS

Clerk

CITY Deputy Clerk

SHIP TO

SHIP VIA BOAT TO FRISCO C/O SO. PAC. & SIERRA RY. SONORA

Shipping Order No. 97148

Your Order No. 8/10/27

Date Filled 8/17/27

Ordered by C M

CREDIT — TERMS

Credit O. K. | P. O. — C. O. D. | Date 8/17

STOCK ISSUED	LOCATION	QUANTITY ORDERED	QUANTITY SHIPPED	DESCRIPTION	CATALOG NUMBER			
	Ra	100/50 K		GR. D./L. NO. 26 CROWNS GLAZED PAPER SPOT OVER	9562	1/50	1/28	795 2950

Date 9-12-27

BILLED SEP 16 1927

ORDER CANCELLED

Transferred to H6 98164 by Express Railway 9/9/27

3 boxes

DISTRICT DIVISION JUN 18 1932 U.S. District Court

NOTE—"QUANTITY SHIPPED" IS THE SAME AS "QUANTITY ORDERED EXCEPT WHERE OTHERWISE NOTED

Prepaid by

Price Checked

Drawn from Stock and Checked by

Inspected by

Checked by

Packed by

Shipped by

Date SEP 16 1927

Postage

Weight

Ent'd in Stores No. By

Estimate No.

or No.

PLAINTIFF'S EXHIBIT NO. 76

658A

859

6588
860

3 SHIPPER'S COPY

The Crown Cork and Seal Co.

BALTIMORE, MARYLAND, U. S. A

No. 98164

Shipping Order
Your Order No. 8/10/27
Date Ent'd 9/9/27
Ordered by C M
F. D. C. No. NONE Date
Qtp. Exp.
Ship on

SOLD TO MACOMBER ORCHARD CO.
ADDRESS SONORA CALIF.
CITY
SHIP TO
SHIP VIA EXPRESS PREPAID

CREDIT—TERMS

Credit O. K.	C. O. D.	C. O. D.
Date 9/9	X	2

BILLED

SEP 14 1927

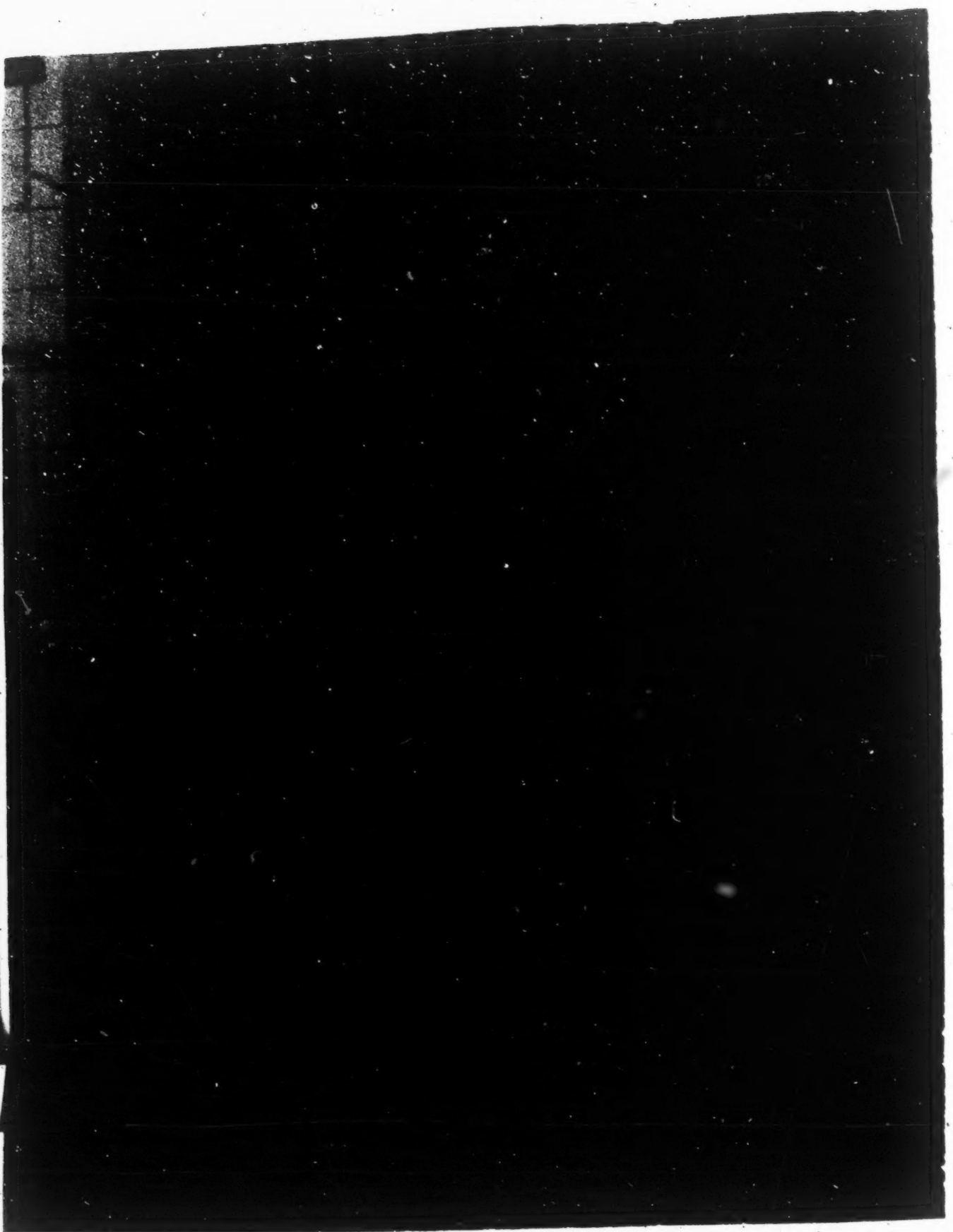
Printed by
Price Checked
Drawn from Stock and Checked by
Approved by
Checked by
Packed by
Shipped by
Date SEP 14 1927
Postage
Weight 60 lbs
Entd in Stores No. By
Estimate No.
Production Order No.

STOCK NUMBER	LOCATION	QUANTITY SHIPPED	QUANTITY ORDERED	DESCRIPTION	CATALOG NUMBER		
		50 k		GR. D/L. NO. 26 CROWNS CLAZED PAPER SPOT OVER			
				TRANSFERRED FROM S.O. 97148			
		3.79 Lbs		Charge Cust. for freight at Freight Rate			18 04
				Use Varnish Coated Paper on this order			
				9-12-27			

NOTE—"QUANTITY SHIPPED" IS THE SAME AS "QUANTITY ORDERED" EXCEPT WHERE OTHERWISE NOTED

Received from THE CROWN CORK AND SEAL CO., in good order and condition.

PLAINTIFF'S EXHIBIT NO. 80



BLANK

PAGE

6581)

862



BLANK

PAGE

[fol. 863] PLAINTIFF'S EXHIBIT No. 84

March 21 1933.

Ferdinand Gutmann and Company, Bush Terminal No. 19, 39th Street and Second Avenue, Brooklyn, N. Y.

Subject: Spot Crowns

GENTLEMEN:

In view of the recent favorable termination of litigation involving the issuance of patents covering foil and paper spot crowns, and the grant of patents thereon to the Crown Cork & Seal Company, Inc., we are now prepared to grant licenses under our line of patents covering spot crowns.

We direct your attention to the following recently issued patents:

1,899,782—Material for Facing Bottle Caps and Method of Making Same. Granted February 28, 1933.
1,899,783—Bottle Caps and Methods of Manufacturing Same. Granted February 28, 1933.
1,899,784—Bottle Caps. Granted February 28, 1933.

In addition to the foregoing patents the Crown Cork & Seal Company, Inc., is the owner of the following patents covering the same general subject matter:

1,339,066—Bottle Closures. Granted May 4, 1920.
1,788,260—Process of Producing Closures. Granted January 6, 1931.

If you desire a license to manufacture spot crowns under these patents we will be pleased to hear from you.

Yours very truly, —— —— President.

[fol. 864] PLAINTIFF'S EXHIBIT No. 85

JAB:ECB.

Final Hearing March 29, 1934.

IN THE UNITED STATES PATENT OFFICE

Patent Interference No. 66,201

WARTH

vs.

JOHNSON

Method of Manufacturing Bottle Caps and Apparatus Therefor

Application of Albin H. Warth filed April 4, 1933, Serial No. 664,410.

Patent granted John A. Johnson April 5, 1932, No. 1,852,578, on application filed November 26, 1929, Serial No. 409,793.

Messrs. Cushman, Darby & Cushman for Warth.
Mr. John O. Seifert for Johnson.

The invention in issue resides in a method of applying a metallic foil lining or "spot" to the cork sealing pad of the usual crown bottle cap. It is fully set forth in representative count 1, which reads as follows:

1. The method of assembling linings for sealing pads in [fol. 865] receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

By stipulation, the only question presented is whether or not the original disclosure of an earlier Warth application, No. 159,743, supports the issue counts. It is stipulated that if it does support the counts, priority of invention shall be awarded to the party Warth.

This question was raised by a motion to shift the burden of proof brought by Warth during the interlocutory motion period. The motion to shift was denied upon the ground that it had not been established beyond a reasonable doubt that the earlier application supported the issue, citing Munro vs. Alexander, 1903 C. D. 334.

The question is now raised for final determination under Rule 130. Evidence has been presented with regard to the meaning of certain terms, and with regard to other matters bearing upon the proper construction of the specification of the Warth application, No. 159,743. At this stage, therefore, Warth is entitled to a consideration of the question de novo, and the burden upon him is decreased to the usual burden of proof placed upon a junior party.

The only limitation in the issue as to which there is any [fol. 866] question is that which requires that the cork pads in the caps be heated prior to the assembly of the spots in the caps. The remaining limitations in the issue are undoubtedly supported by the original disclosure of Warth application 159,743. Warth relies upon the following sentences to support the limitation in question:

"It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during any interval between assembling and final sticking. This may be accomplished, for example, *by preheating the assembled crown, to soften the coating, as* soon as the metal foil spot is deposited." (Italics added.)

In the decision on the motion to shift the burden of proof it was pointed out that in view of the use of the term "assembling" to describe the step of combining the spot with the cork pad of the cap, the phrase "assembled crown" would seem to refer to the complete spot center cap. In which case the so-called "preheating" of the "assembled crown" would have to take place subsequent to assembly of the spot. It was further pointed out that this construction was supported by the comma after "coating", which comma made the phrase, "to soften the coating", parenthetical.

The party Warth has now submitted uncontroverted evidence that the term "assembled crown" is applied in the bottle cap art to the combination of the usual metal shell

and the cork sealing pad. These "assembled crowns" are [fol. 867] apparently made independently of the "spotting" operation, covered by the present issue, and are usually used without the spot center. For certain purposes, however, spot center crowns are preferred.

It is further pointed out that the term "assembled crown" is nowhere in the early Warth specification applied to the complete spot center crown. The latter is referred to in several places as an "assembled unit".

Of course, if the phrase "assembled crown" is construed to mean a crown having no metallic spot therein, the comma after "coating" renders the sentence conflicting. In a case of this kind, however, punctuation may be ignored if the correct meaning would be apparent to one skilled in the art. And it is urged by Warth that in spite of the comma a person skilled in the art would necessarily understand that the quoted sentence described a method involving the application of heat to the cork pad prior to the application of the spot.

This raises a question which has been given careful study. Without going into detail it may be stated that it seems clear that the sentences in question refer to a method involving the application of a spot to the cork pad, and a subsequent application of heat and pressure to complete the union of the two. Moreover they state that it may be desirable to secure the spot in position prior to the heat and pressure steps, and that this may be accomplished "by preheating the assembled crown". It was suggested in the prior decision that this language could be construed to set forth a method in which the assembled spot center crown was preheated between the time the spot center [fol. 868] was applied and the time when the heat and pressure were applied. If it is not so construed, however, it is believed fair to state that it set forth the step of preheating the cork pad in the cap prior to the application of the spot center thereto, and that therefore it supports the issue here.

It is contended by Warth that the first construction is so unreasonable from a practical standpoint that it would not occur to one skilled in the art from the language used. In this connection it is pointed out that the early Warth specification states that the method disclosed therein can be performed upon the usual assembling machinery previously used to deposit metal foil disks upon the cork pads

and secure them in place. Attention has been called to the patents to McManus, No. 1,402,780, and Alberti, No. 1,401,-300, showing machines for this purpose. In these machines the caps are passed intermittently in single file beneath a reciprocating punch, which cuts the metal foil disk from a strip and deposits it upon the cork pad. The caps then pass to an immediately adjacent heated plunger which applies sufficient heat and pressure to complete the union. It was agreed by both parties at the hearing that machines of this character were used commercially prior to 1927 and that they operated at high speed.

It is urged by Warth that it would be absurd to suppose that the sentences in question referred to a method wherein heat was applied between the assembling operation and the operation of the heated plunger which accomplishes final sticking, because the time interval in commercial machines between these two operations is negligible. Moreover, at [fol. 869] the hearing it was conceded by the attorney for Johnson that such a procedure would be impractical.

In addition it is urged that the stated purpose of the preheating, viz., to prevent dislodgment of the spot during any interval between assembly and final sticking, would suggest that the initial sticking took place as soon as the spot was deposited. In which case the heat would necessarily have to be applied prior to the time of assembly. Likewise, it is pointed out that the term "preheating" very inaptly describes the application of heat subsequent to the time when the spot is applied. While, in itself, the presence of such language is not controlling, it undoubtedly renders the two sentences peculiarly subject to the construction urged by Warth.

A patent specification is addressed to those skilled in the art, and it must be read in the light of what was known in the art to which it appertains at the time the application was filed. Moreover, its terms must be given the meaning ordinarily given such terms by those familiar with the art. In view of these well establis-ed principles, the uncontroverted evidence respecting the meaning of the phrase "assembled crown", and respecting the prior practices in the bottle cap art, must be given weight in construing the two sentences relied upon to support the limitation in question. It is believed that the showing made, together with the admissions of the attorney for Johnson, is sufficient to indicate that the intended meaning, and the meaning

which would be gathered by one skilled in this art from the early Warth specification, is in accordance with the [fol. 870] issue. Under these circumstances, the inclusion of the comma after "coating" must be considered inadvertent.

Accordingly, it is held that the issue counts are supported by the original disclosure of the Warth application, No. 159,743. In view of the previously mentioned stipulation, priority must be awarded to the party Warth.

Priority of invention of the subject matter in issue is hereby awarded to Albin H. Warth, the junior party.

Limit of appeal: May 4, 1934.

W. O. Houston Examiner of Interferences, Room 3098.

April 14, 1934.

[NOTE—The record of this interference is marked Defendant's Exhibit YYYY, page 1887 of this record.]

[fol. 871] PLAINTIFF'S EXHIBIT No. 86

390

Department of Commerce, United States Patent Office

To all persons to whom these presents shall come, Greeting:

This is to Certify that the annexed is a true copy from the records of this office of Papers 1, 50 and 62, in the matter of Interference Number 60,878, Warth vs. Lange, Subject Matter: Adhesive Backing.

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this fifth day of April, in the year of our Lord one thousand nine hundred and thirty-five and of the Independence of the United States of America the one hundred and fifty-ninth.

Conway P. Coe, Commissioner of Patents. (Seal.)

Attest: D. E. Wilson, Chief of Division.

[fol. 872] 50, Room 322

Letter No. —

Address only "The Commissioner of Patents, Washington, D. C."

Department of Commerce, United States Patent Office,
Washington

Nov. 28, 1930.

Examiner of Interferences:

An interference is found to exist between the following cases, and in respect to the invention therein specified, to wit:

Cases

1. Name Albin H. Warth.
Post office address: 29 York Court, Baltimore, Maryland.
Title: Material for Facing Bottle Caps and Method of Making same.
Filed Dec. 17, 1929, Ser. No. 414,614.
Attorney: Cushman, Bryant & Darby of Washington Loan & Trust Bldg., Washington, D. C.
Assignee: Crown Cork & Seal Compound, Inc., of New York, N. Y. (a Corp. of New York).

[fol. 873] 2. Name: Louvern G. Lange.
Post office address: 39 High St., Passaic, New Jersey.
Title: Adhesive Backing
Filed July 3, 1929, Ser. No. 375,883 Pat'd. May 13, 1930. No. 1,758,610.
Attorney: Pennie, Davis, Marvin & Edmonds of 165 Broadway, New York, N. Y.

Intf. Number 60878.
Intf. Declared Dec. 20, 1930.
Statements Due Jan. 19, 1931.

Invention

Count 1. As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof.

The relation of the counts of the interference to the claims of the respective parties is as follows:

Count	Warth	Lange
1	7	1

Ch. Blake, Examiner.

Counts Compared.

[fol. 874] Final Hearing June 16, 1932

HHH/c.

IN THE UNITED STATES PATENT OFFICE

Patent Interference No. 60,878

WARTH

v.

LANGE

Adhesive Backing

Application of Albin H. Warth, Filed December 17, 1929, No. 414,614

Patent Granted Louvern G. Lange May 13, 1930, No. 1,758,610, on Application Filed July 3, 1929, No. 375,883

Messrs. Cushman, Bryant, Darby and Cushman for Warth.

Messrs. Pennie, Davis, Marvin and Edmonds for Lange.

This is an interference involving the senior party, Lange, as a patentee and the junior party, Warth, as an applicant.

The issue is expressed in a single count which reads as follows:

1. As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the [fol. 875] paper and a coating of gutta percha on the other surface thereof.

The junior party Warth, has alone taken testimony. Both parties have filed briefs and were represented by counsel at the hearing.

Both parties have alleged date of conception and reduction to practice some ten years or more prior to their respective filing dates. Warth has offered some evidence to support this early date, as alleged, but the greater portion of his record relates to work of much later dates and this evidence alone will be here discussed as it is entirely sufficient for this decision.

The proof of the major facts of Warth's case appears to be subject to no great attack by Lange. However, their legal effect is the subject of considerable difference of opinion.

Some pertinent facts of Warth's case that are deemed fully established may be briefly summarized as follows:

Warth is the Chemical Director of Crown Cork & Seal Company of Baltimore, Maryland, where he has been employed for some fifteen years. At least as early as 1927 the Crown Cork & Seal Company had been making crown caps known as spot crowns which were used as bottle caps, being commonly employed with bottles containing soft drinks, vinegar, cider, etc. The spot crowns made during 1927 comprised a metal crown with a cork disk inserted therein upon which was fastened a spot of metal, such as aluminum foil, by means of a gutta percha coating between said spot and cork disk. The spot was applied by first making a composite tape from a spool of gutta percha and a [fol. 876] spool of foil combined on a machine similar to that shown by Warth Exhibits 2 and 3. This tape was then fed to a spotting machine where the spot was applied to the cork disk.

The gutta percha rolls used were purchased from the Bishop Gutta Percha Company.

On or about May 5, 1927, there was made by the Crown Cork & Seal Company, at the direction of Warth, a composite tape spool wherein varnish coated express paper was substituted for the metal foil, which tape was used in spot crowns in place of the previously manufactured metal spot crowns. (Smith Qs. 79-88, Qs. 93-110, 178-184; Warth Qs. 14-30, Warth Exhibit 4.) It is freely admitted by Warth and certain of his witnesses that the varnished paper used to make this composite tape was purchased from the Standard Insulation Company of which the party Lange is president (Smith Q. 186, Warth X Q. 112, R. D. Qs. 44-47). The composite tape formed by the combined varnish express

paper and gutta percha, which was used to make these spot crowns fully supports the count.

The said varnish paper spot crowns made at the above date were to fill an order from Barrow Brothers of Baltimore for fifty gross of double-lacquered glazed paper spots to be used for sealing Citrate of Magnesia. This order was at least partly filled on or about May 6, 1927, as is established by the testimony of Smith (Smith Qs. 116-124); Warth (Warth Qs. 17-19; Q. 30); and LaCourse (LaCourse Qs. 19-41, Q. 45) and Warth Exhibits 5, 6, 8, 9, 56, and 57. These crowns proved satisfactory according to the testimony of each of the above witnesses.

[fol. 877] The above considered evidence is deemed to establish that the invention in issue was conceived and reduced to practice by Warth not later than May 5, 1927, when the composite tape made of the combined varnish express paper and gutta percha coating was made in the factory of the Crown Cork and Seal Company which tape was found satisfactory to produce spots in spot crowns produced therefrom. Whether or not Warth is entitled to any earlier date for either conception or reduction to practice is immaterial to this decision and is therefore not passed upon.

Rather conclusive evidence has been offered of subsequent sales of spot crowns similar to those sold to Barrow Brothers, to the Macomber Orchard Company of Sonora, California. However, in view of the above holding no detailed discussion of this evidence is deemed necessary.

The question of originality is raised in this case by a direct allegation by Warth that the method employed in coating paper with gutta percha, above noted, was disclosed to Lange by himself during a visit of Langé at the plant of the Crown Cork and Seal Company in 1928 (Warth Q. 77). Lange, having taken no testimony, does not deny this allegation.

The method of coating varnish paper with gutta percha, as above outlined, was carried on by the Crown Cork and Seal Company until early in 1929 at which time arrangements were made whereby the varnished paper was shipped from the Standard Insulation Company to the Bishop Gutta Percha Company in large rolls, the latter to coat the paper with gutta percha, cut it into rolls of about 1 inch width, and send it to the Crown Cork and Seal Company (Reed Q. 81; [fol. 878] Warth Q. 47; Qs. 64-71; Qs. 113, 114). These ar-

rangements were apparently completed about March 28, 1929, as evidenced by Warth Exhibit 19-C.

Warth has introduced into evidence as Exhibit 44 a carbon copy of a letter written by himself to Lange on February 12, 1929. This letter refers to the arrangements made whereby the Bishop Gutta Percha Company was to coat the rolls to be supplied by the Standard Insulation Company and thereby contains a disclosure of the invention in issue. Warth Exhibit 18-A dated February 14, 1929, indicates that Lange was in Seattle, Washington, when the letter, Warth Exhibit 44, was written but he must have returned prior to March 27, 1929, when according to Reed's testimony (Reed Qs. 75-81) Lange visited the plant of the Bishop Gutta Percha Company and was disclosed the process whereby that Company proposed to coat varnished paper with gutta percha. Note also Warth Exhibits 19-C and 20. This disclosure to Lange by Reed as well as the letter, Warth Exhibit 44, constituted additional disclosures of the invention in issue to Lange from Warth.

The testimony above considered not only establishes conception and reduction to practice of the invention in issue by Warth at least as early as May 5, 1927, but also established disclosure of the invention in issue to Lange from Warth prior to Lange's record date.

It has been urged by Lange that certain Cross Exhibits show that Warth derived the invention from Lange. However, Lange has failed to produce a single cross exhibit [fol. 879] dated prior to May 5, 1927, or in fact prior to March 28, 1929, which shows Lange to have been in possession of the invention in issue.

Warth having made out a prima facie case of prior inventorship as well as a prima facie case of his being the original inventor of the invention in issue he is entitled to an award of priority.

The request by Lange that this interference be referred to the Commissioner for dissolution without an award of priority under Weston v. Jewell, 1902 C. D. 20 has been duly considered. The basis for this request is an alleged admission of public use and sale by Warth more than two years prior to his filing date. However, no unequivocal admission of public use or sale of the precise invention in issue, as these terms are employed in the patent statutes, is found in Warth's testimony which is sufficient to warrant such a recommendation. The request is therefore denied.

Priority of invention of the subject matter in issue is hereby awarded to Albin H. Warth, the junior party.

Limit of appeal: July 20, 1932.

J. P. Disney, Examiner of Interferences, Room 3714.

June 30, 1932.

[fol. 880] Appeal No. 6045. Paper No. 62

Decision

Appeal No. 6045

MSP

Hearing: Oct. 7, 1932.

IN THE UNITED STATES PATENT OFFICE

Before the Board of Appeals

WARTH

v.

LANGE

Patent Interference No. 60,878, between the application of Albin H. Warth filed Dec. 17, 1929, Serial No. 414,614 and patent granted Louvern G. Lange May 13, 1930, No. 1,758,610 on application filed July 3, 1929, Serial No. 375,883. Adhesive Backing.

Cushman, Bryant, Darby & Cushman for Warth.

Pennie, Davis, Marvin & Edmonds for Lange.

The party Lange appeals from the decision of the examiner of interferences awarding priority of invention of the subject matter in issue to the party Warth.

Lange has advanced a large number of reasons for his appeal, but his argument is based primarily upon the alleged [fol. 881] ground that Warth's testimony constitutes an admission on his part that the invention in issue was on sale and in public use more than two years prior to his filing date, namely, December 17, 1929. Lange contends that since he is a patentee the only question before the Office is whether a patent may be granted to Warth, and that in view of Warth's alleged admission the interference should be dis-

solved without deciding the question of priority. In support of this contention Lange relies upon the decision in Weston v. Jewell, 1902 C. D. 20.

If, as contended by Lange, the party Warth has definitely and unequivocally admitted that the subject matter in controversy was in public use or on sale more than two years prior to the filing of his application, or if he has admitted facts from which such conclusion would necessarily follow, the interference unquestionably should be dissolved, without judgment on the question of priority, as the Patent Office does not conduct useless proceedings nor decide moot questions.

In order to determine whether the subject matter in issue was admitted by Warth to have been in public use or on sale more than two years prior to the filing of Warth's application, it is necessary to ascertain the nature of said subject matter which is defined as follows:

"As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof."

As thus defined the subject matter of the issue contains four limitations: first, it must be "an article of manufac- [fol. 882] ture"; second, said article of manufacture must be "paper having a high gloss"; third, said paper must have "a coating of varnish on one surface"; and, fourth, it must have "a coating of gutta percha on the other surface."

Lange contends that Warth's admissions are to be found in the testimony of Warth's witnesses Smith and Irving and in his own testimony. That part of Lange's brief which deals with this testimony may be quoted as follows:

"The Warth testimony constitutes an admission that the invention was in public use and on sale more than two years prior to the Warth filing date. According to Warth's witness Smith the manufacture of glazed paper spot crowns embodying the invention here in issue was commenced in May, 1927 (R., p. 10, Q. 78; R., p. 11, Q. 90; R., p. 17, Q. 141). These spot crown caps were made by the use of machines placed in regular commercial operation early in 1927.

'Q. 76. State whether the two machines built in 1927 were used in experimental or commercial work after being placed in operation?

'A. Commercial work.'

The witness Smith testified that the first order for spot crowns embodying the invention was filled in May, 1927, and a large order in September, 1927 (R., p. 17, Qs. 141, 143; R., p. 63, X Q. 12; R., p. 67, X Qs. 43, 44, 46 and 47; R., p. 69, X Q. 63). The following portions of Smith's testimony are particularly pertinent:

[fol. 883] 'X Q. 12. You have testified with reference to Exhibit 5 to the effect that the first sale of glazed paper spot crowns occurred on May 5, 1927. That is the first commercial sale, is it not?

A. It is. Was that question as to the glazed paper spots?

Mr. Jackson: Yes.

A. That is the first sale' (R., p. 63).

'X Q. 46. Was not the sale made on May 5, 1927, an ordinary commercial transaction?

'A. It was, yes.' (R., p. 67).

'X Q. 62. When were the coating machines put into operation first in 1927?

'A. You are calling them coating machines, and we have been calling them combining machines. The combining machines were put in operation about the first part of February, 1927.

X Q. 63. That was regular commercial operation?

'A. That is right.

X Q. 64. When were they first used for combining gutta percha tissue to paper?

'A. Around about May 5' (R., p. 69).

Warth himself testified that sales of glazed paper spot crowns embodying the invention, were made to Burrough Brothers of Baltimore in May, 1927, and to the Macomber Orchard Company in September, 1927 (R., pp. 102, 103, 104).

On page 140 of the record in answer to X Q. 129 Warth stated:

'No, I don't recall examining the records until very re-
[fol. 884] cently. I do know that we made up the glazed

paper spot crowns in the summer of 1927 in small quantities; particularly, I recollect the large order that was made up for the Macomber Orchard Company in September, 1927.'

The witness, Fred E. Irving, manager of the Macomber Orchard Company, testified that an order for 150 gross of the glazed paper spot crowns was filled in September, 1927, after a gross of glazed paper spot crowns had been tested by the Macomber Orchard Company for a period of several months and had been found to be satisfactory (R., p. 185, X Qs. 20, 21; R., p. 186, X Qs. 26 to 29, inclusive). This large order supplied to the Macomber Orchard Company was paid for by check in the regular course of business according to the testimony of Mrs. Irving (R., p. 189, Q. 19).

According to witness Smith the product here in issue was commercially used on the regular assembly machine in the plant of the Crown Cork and Seal Company in the summer of 1927.

'Q. 178. Now, as to the method of manufacture or assembling, what method was used in the assembling of paper and gutta percha crowns?

A. Simply using the standard practice of combining the paper and gutta percha, using a special machine built for that purpose, and then assembling on the regular assembling machine' (R., p. 21)."

It appears from the above quoted testimony that the [fol. 885] "article of manufacture" which was actually in public use or on sale was a finished cap having a center spot of paper coated with varnish on its exposed surface and coated with gutta percha on its opposite surface. This paper so coated did not have an existence as an "article of manufacture" apart from and independent of the lined cap, but was formed during the process of forming the cap. While it is true that the paper lined cap constituted an article of manufacture, yet the paper which formed the lining may not be so regarded under the generally accepted definition of an article of manufacture.

Robinson in his Law of Patents defines an article of manufacture as follows:

"A manufacture is an entity distinct from the substances of which it is composed, and from the instruments or art

by which it is produced. It is an instrument by itself, embodying a separate and complete idea of means, and derives from this idea its own essential character. If known already to the arts, its production by a new process or by new instruments cannot make it new; nor if unknown is it the less a new invention that the agencies or methods by which it is now evolved are old. As to all the conditions required to render it a patentable invention it must stand or fall alone."

"A manufacture may consist of a single instrument, or of a combination of instruments which act together for a common purpose. The instrument is single where none of the parts of which the manufacture is composed could be [fol. 886] used without other parts in the production of mechanical effects. But where two or more single instruments are united in a new instrument, and co-operate with each other in the production of an effect beyond the sum of the effects of the individual instruments, they form a combination which is a new manufacture" (Vol. 1, page 270).

As to priority, Lange took no testimony, and he is therefore confined to the date of filing of his application, namely, July 3, 1929. The record, however, discloses the fact that Warth was in possession of the article of manufacture defined by the issue before Lange filed, as evidenced by Warth's Exhibits 25, 44, 45, 18-A to 18-F and 19-A to 19-S. Reference is particularly made to Warth's Exhibit 44, a letter addressed to Lange by Warth, in which occurs the following statement:

"My scheme is to coat the roll of paper or foil with gutta percha instead of using said materials in conjunction with the tissue. There are several reasons for doing it in this way. One reason of immediate importance concerns the crown assembling proposition in some of our foreign plants. It would be simpler for one of our foreign plants which does not have much experience with spot assemblies to secure their paper or foil all ready coated with gutta percha and ready to use. There would also be some saving in the cost and less wastage in the machine.

I think you will also find that gutta percha lined var- [fol. 887] nished cambric and gutta percha lined varnished paper may have some application in the electrical industry.

It might be well worth your while to meet Mr. Reed, who has my confidence and whom you can trust in any business negotiation. Mr. Reed has also requested a desire to meet you and stated to me that he would call at your plant.

For our particular purpose here he suggested that we arrange to have you ship to him 100 yards of 36" width glazed paper that we use for spot crowns. He will coat this paper with gutta percha, slit same into specified width and then ship the spooled material to Baltimore. If this experiment proves successful and economical we can arrange matters in such a way that we may get the gutta percha coated glazed paper directly from the Bishop Gutta Percha Company, or at least that portion which may be shipped to Toronto, Montreal, Havana and any of our foreign plants."

Lange's cross-exhibits have no controlling bearing on the questions involved.

In view of the above, we find no error in the decision of the examiner of interferences awarding priority of invention of the subject matter in issue to the party Warth, and his decision is accordingly affirmed.

M. J. Moore, Assistant Commissioner; W. S. Ruckman, Examiner-in-Chief; J. W. Chip, Examiner-in-Chief, Board of Appeals.

October 17, 1932.

BLANK

PAGE

676

888

PLAINTIFF'S EXHIBIT No. 87

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper, Contents and all Drawings, in the matter of the

Letters Patent of

John A. Johnson,

Number 1,852,578, Granted April 5, 1932,

for

Improvement in Methods and Apparatus for Assembling Linings in Receptacle Closure Caps.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this fourth day of April, in the year of our Lord one thousand nine hundred and thirty-five and of the Independence of the United States of America the one hundred and fifty-ninth.

ATTEST:

Chief of Division.

Commissioner of Patents.

13—6388
U. S. GOVERNMENT PRINTING OFFICE: 1934

676

677

889

1852578

NUMBER (Series of 1929) 109793

DIV. 14

ATENT NO.

DATED APR 5-1932

(EX'R'S BOOK) 23-249 (10)

Name JOHN A. JOHNSON,

of WOODHAVEN,

State of NEW YORK

Invention METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

ORIGINAL

APPLICATION FILED COMPLETE NOV 26, 1929

Petition, Specification, Oath, First Fee $30, 3 sheets Drawings, NOV 26, 1929

15 EXTRA CLAIMS $75. NOV 26, 1929

RENEWED

J 17 1-4
878-47
18-1-3
19-4-90 97 1-4
R39-330

Examined and passed for Issue Sept 19, 1931

Exr. Div. 14

Notice of Allowance Sept 19, 1931

By Commissioner

Final Fee $30 Mar 9, 1932

Reexam'd and passed for Issue, 19

Exr. Div.

Notice of Allowance, 19

By Commissioner

Final Fee, 19

Attorney JOHN O. SEIFERT 277 BROADWAY NEW YORK N.Y.

Associate Attorney

No. of Claims Allowed 30 Print Claims 1 and 28 in O. G. Class 113-80

Title as Allowed Method and Apparatus for Assembling Linings in Receptacle Closure Caps

Division of Application Filed

677

850

Form 546.—Petition for Letters Patent. W.B.—D.C.D. Julius Blumberg, Inc., Law Blank Publishers 71 Broadway and 1 Boston St., New York. R. of P. U. S. P. O. Revised January, 1920

NOV 26 1923 U.S. PAT OFFICE

110475

409798

35 claims

Petition.

U.S. PATENT OFFICE DEC 4 DIVISION 16

To the Commissioner of Patents:

Your Petitioner JOHN A. JOHNSON, a citizen of the United States and residing at Woodhaven, in the County of Queens, City and State of New York, and whose Post Office address is 84-16-86th Street, Woodhaven, N.Y. prays that Letters Patent may be granted to him for the Method and Apparatus for Assembling Linings in Receptacle Closure Caps, set forth in the annexed specification; and he hereby appoints JOHN O. SEIFERT, (Registration #8820) of 277 Broadway, New York, N.Y., his attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

Inventor's Signature, Full Name. John A. Johnson

Specification.

To all whom it may concern:

Be it known that JOHN A. JOHNSON, a citizen of the United States and resident of Woodhaven, in the County of Queens, City and State of New York, have invented certain new and useful Method and Apparatus for Assembling Linings in Receptacle Closure Caps, of which the following is a specification

679

891

This invention relates to assembling and adhesively securing an impervious lining to sealing pads in closure caps of the type known as "crown caps" by the heating of sealing pads in the caps, the inserting of the linings having an adhesive surface normally non-viscous in the caps with the adhesive surface abutting the heated pads rendering the said adhesive surface of the linings viscous to adhere to the pads, subjecting the pads and linings to heat and pressure to assure an intimate adhesion between the linings and pads and subjecting the caps with the pads and linings to pressure during the cooling thereof, and it is the primary object of the invention to provide an improved method and apparatus for this purpose that are highly efficient in use.

By the method and apparatus now in use for this purpose the caps with the pads before the assembling of the linings therein are passed through a zone having an elevated temperature provided by a series of gas flames which scorch the pads with the result that the assembled caps are not acceptable by merchandisers or users of the caps, and it is another object of the invention to overcome this disadvantage by providing electric heating means to produce the elevated temperature zone, which means is adjustably mounted in superposed relation to the exposed surface of the cap pads and adapted to be moved from said position to a position away from the caps when the apparatus is inoperative and thus prevent scorching of the pads and a consequent destruction of the caps.

It is still another object of the invention to provide an improved and novel means to control the delivery of caps having sealing pads from a hopper to means to feed the caps to the

means to assemble the lining on the pads.

It is a further object of the invention to provide improved means to positively feed a web of impervious material from a roll of such web to punch and die mechanism to sever linings from the web and said feeding means adapted to be rendered inoperative when there are no caps on the cap feeding means relative to the punch and die mechanism, and to maintain a slack portion of the web between the roll of web and punch and die mechanism and thus prevent a sudden strain on and breaking of the web.

A further object of the invention is to provide means to guide the web of impervious material to punch and die mechanism and centrally position lining disks severed from the web relative to a pad in a closure cap.

Another object of the invention relates to means to place the impervious linings assembled on the pads in the caps under heat and pressure to render an intimate adhesion between the linings and pads.

The embodiment of the invention comprises a punch and die mechanism to which closure caps of the crown type having sealing pads therein are fed from a hopper by a slide depositing the caps with the pads exposed relative to a reciprocating member and delivered by said latter member to feed mechanism and intermittently fed by said mechanism along a support for the caps to the punch and die mechanism through a zone having an elevated temperature produced by an electric heating unit adjustably mounted superposed to the pads in the caps to heat the pads and adapted to be automatically moved to a position remotely of the caps when the apparatus is rendered inoperative. To provide and assemble impervious linings in the caps centrally of the pads a web of impervious material having an adhesive surface normally non-viscous is fed to the punch and die mechanism by means adapted to be

rendered inoperative when no caps are positioned by the feed mechanism adjacent the punch and die mechanism. Lining disks are severed by the punch and die mechanism from the web and positioned by the punch in co-operation with a guide and support for the web centrally of and with the adhesive surface of the linings contiguous to the cap pads, the adhesive surface being rendered viscous through the heat of the pads. To effect an intimate adhesion between the linings and pads the caps with the pads and linings assembled therein are moved by the feed mechanism from the punch and die mechanism to means to place them under heat and pressure comprising electrically heated plungers actuated in synchronism with the punch and die mechanism and impinged against the linings and pads in the caps. To insure the complete adhesion between the linings and pads before discharging the assembled caps from the apparatus the caps are delivered from the electrically heated plungers to means to maintain the linings and pads under heat pressure during the cooling thereof.

In the drawings accompanying and forming a part of this application, Figure 1 is a side elevation of apparatus illustrating an embodiment of the invention and shown with the parts in inoperative condition.

Figure 2 is a view of the apparatus looking at the top of Figure 1.

Figure 3 is a plan view of the right hand end portion of the apparatus on an enlarged scale and partly in section.

Figure 4 is a sectional view taken on line 4-4 of Figure 3 looking in the direction of the arrows.

Figure 5 is a fragmentary elevational view of the central portion of the apparatus showing the actuating mechanism for the web feeding means.

Figure 6 is a sectional view taken on the line 6-6 of Figure 5 looking in the direction of the arrows.

Figure 7 is a detail view in perspective of controlling means for the actuating mechanism of the web feeding means.

Figure 8 is an end view of a detail of the actuating mechanism of the web feeding means.

Figure 9 is a perspective view of a web impinging roller carrier of the web feeding means.

Figure 10 is an elevational view partly in section, of punch and die mechanism and electrically heated pressure plungers.

Figure 11 is a sectional view of the punch and die mechanism taken on line 11-11 of Figure 10 looking in the direction of the arrows.

Figure 12 is a sectional view on an enlarged scale of the punch and die mechanism in position after severing a lining disk from the web and means to actuate a plunger to strip the severed disk from the punch and impinge it against the pad in a cap.

Figure 13 is a view similar to Figure 12 of the punch and die mechanism showing the punch positioning a severed lining disk in a cap centrally of the cap pad and the plunger about to impinge the severed lining against the pad in a cap.

Figure 14 is a view similar to Figure 13 of the punch and die mechanism and showing the plunger impinging the severed lining against the pad in a cap.

Figure 15 is a view similar to Figure 14 showing the punch receding and the plunger impinging the severed lining against the pad of a cap and stripping it from the punch.

Figure 16 is a sectional view of a heated plunger to place a lining and pad assembled in a cap under heat and pressure and showing the same in relation to a portion

of the punch and die mechanism.

Figure 17 is a cross sectional view taken on the line 17-17 of Figure 16 looking in the direction of the arrows.

Figure 18 is a sectional plan view of means to guide the lining web relative to the punch and die mechanism.

Figure 19 is a plan view of a web roll and means to guide and feed the web from the roll to the punch and die mechanism.

Figure 20 is a side elevation looking at the bottom of Figure 19; and

Figure 21 is a sectional view taken on the line 21-21 of Figure 20 looking in the direction of the arrows, to show the connection between the means to feed the web to the punch and die mechanism with the means to feed the web from the web roll.

In the embodiment of the invention illustrated the operative parts are mounted upon a suitable framework comprising a table T supported upon standards S.

The caps C having sealing pads P usually of a cork composition adhesively secured therein, are delivered from a hopper (not shown) by a chute or slideway 14 arranged with flanged sides and top to prevent the caps from jamming or leaving the chute, and having a pivotally mounted gate 15 at the lowermost portion of the chute operated by a lever 16 to control the delivery of the caps from the chute, Figure 1. The caps are delivered from the chute to a tunnel-shaped guide member 17 extended from the end of a chute 14 in an arcuate direction, said guide being superposed and opened to the peripheral portion of a disk 18 rotatably supported by a sleeve 19 mounted on the table T to extend from the opposite faces thereof. The disk is rotated by a shaft rotatably carried by the sleeve 19 to extend from the ends of the sleeve with one end of the shaft fixed to the

disk and having a pinion 20 fixed at the opposite end meshing with a pinion 21 fixed to a horizontal extending drive shaft 22 rotatably mounted in bearings 23 carried by the table T and standards S. The caps are moved from the outlet of the chute 14 along the member 17 by the rotation of the disk 18 to a position at the end thereof in alinement with a space between a pair of spaced rails 24 mounted above and parallelly of the table T by a series of supports 25 and having the opposite edges bevelled, as at 26, Figure 3, for the slidable support of the caps at opposite skirt portions to prevent the scratching or marring of the decorative surface thereof.

The caps are intermittently advanced or fed along the rails 24 by a feed rack embodying a plate 27 carried by a slide 27' mounted in recesses 28 of the supports 25 for one of the cap supporting rails 24 (Figure 4) to have longitudinal and lateral movement. The plate is arranged with laterally extending fingers or projections forming spaced recesses 29 substantially of the size and shape of the caps to engage the caps laterally and feed the same along the rails 24 by a reciprocatory movement thereof consisting of four separate quadrant stages produced through the rotation of a pair of disks 30 (only one of which is shown at the right of Figure 3) carried by shafts rotatably mounted in sleeves 31 extending from both surfaces of the table T similar to the sleeve 19, the shafts having pinion driving connections 32 with the drive shaft 22. The feed rack 27 is pivotally connected to the disks 30 eccentrically of the axis of the disks by arms 33 extended laterally of said rack plate adjacent opposite ends. By the rotation of the disks movement is imparted to the rack laterally to engage the rack fingers between and into engagement with the caps on the rails 24, then in a direction longitudinally of said rails to feed caps along the rails, then laterally to move the rack fingers out of en-

gagement with the caps, and then longitudinally in reverse direction to position the rack fingers between successive caps on the rails 24.

The caps, as they are moved by the disk 18 from the guide 17, are engaged between guide ledges 34 extended downward from the opposite longitudinal marginal portions of a plate 34' hingedly carried by the guide member 17, as at 35, in alinement with the delivery end thereof to extend over the disk at the entrance to the space between the cap supporting rails 24 and to permit lifting of said guide plate away from the disk 18 to remove caps which may become jammed therein, or for inspection, cleaning or otherwise. The one guide ledge 34 is cut away at the entrance to the cap supporting rails for the delivery of the caps laterally from the disk 18 to said rails.

The movement of the caps through the rotation of the disk 18 along the guide ledges 34 is arrested by a stop 36 in the form of a finger extended from the end of one of the rails 24 at a right angle to the guide plate 34' to the end of the outer guide ledge 34. The cap abutting the extended rail portion 36 is moved forward onto the bevelled edges 26 of the rails 24 by an ejector member 37 pivotally mounted at one end on a supporting stud 38 on the table T, to extend over disk 18 and have oscillatory movement between said disk and guide ledges 34 and the extended rail portion 36 to engage the cap by a projection extended laterally from the free end, the free end of said ejector being in an arc, as at 39, to engage the successive cap and maintain the caps in their respective positions in the guide and chute during the delivery of the forward cap onto the rails 24. The ejector 37 is actuated by and in sequence with the movements of the feed rack through a link 40 pivotally connected at one end with the feed rack 27 and connected to the ejector member adjacent the mounting thereof by pin 42 fixed in and extending laterally from the

ejector engaging a slot 41 in the link, the ejector being urged in a direction toward the guide 34'under the tension of a leaf spring 43 anchored on the ejector support and slidably engaging the pin 42 to assure the positive actuation of the ejector and to afford loose motion for the variations in the movements of the parts.

The longitudinal movement of the feed rack in a direction away from the disk 18 and the corresponding forward movement of the ejector 37 effected by the spring 43 will transfer the cap abutting the stop 36 onto the rails 24 into engagement with the end feeding finger of the rack slide 27, as shown in Figure 3. During the next two quadrant steps of the movement of the rack slide, the ejector 37 will be moved away from the guide 34' through the link connection thereof with the rack slide permitting the successive caps in the guide 17 to move by the force of the weight of the caps down the chute 14 and the rotation of the disk 18 positioning the foremost cap against the stop 36 opposite the ejector projection, the recess between the two fingers 29 at the end of the rack being positioned opposite the cap positioned by the ejector on the rails 24 and upon the successive movement of the feed rack towards the caps on the rails 24 positioning the end feed finger in the rear of such end cap on the cap supporting rail 24 and moving the rack fingers that were in front of caps to the rear of the respective caps on the rails 24. During the next step in the movement of the feed rack the caps on the rails are moved forward a distance equal to the width of the rack recesses, the cap in the forward recess being delivered from the rails and the foremost cap in the guide 34' transferred to the rails 24 by the ejector 37 in conjunction with the first slide projection as described.

To retain the caps on the rails 24 guide rails 44 are secured upon the tops of the rails 24 with the longitudinal

marginal portion overhanging the beveled cap supporting edges of the rails, as shown in Figure 7.

To heat the pads P of the caps to render viscous an adhesive normally non-viscous, such as caoutchouc, carried thereby said pads or the linings to be positioned on the pads, the caps are passed through a zone having an elevated temperature as they are moved along the rails 24 and produced by an electric heating unit 45 comprising an electric resistance wire embedded in a carrier having low electric conductivity and high thermal conductivity material arranged within a receptacle 46 pivotally mounted by arms 47 on one of the rails 24 to adjustably position the unit in superposed relation to the space between the rails and the exposed pads, as shown in full lines in Figure 4, and in a position remotely of the caps on the rails, as shown in dot and dash lines in said figure 4. The terminals of the resistance wire are electrically connected to contact terminals of a connection plug member mounted on the receptacle, as at 46', for connection with a source of electricity by electric conductors 48 through the usual plug connection.

To prevent scorching of the pads of the caps [illegible] below the heating unit due to the rendering of the apparatus inactive through the disconnecting of the apparatus from the source of power, in the present instance effected by shifting a belt [illegible] (not shown) from a pulley 52 fixed to the drive shaft to a pulley 53 loose on said shaft, said belt shifter comprising a rod 49 slidably mounted in brackets 50 on standards 3 and carrying a yoke member 51 for the passage and embracing the opposite edges of the belt. The belt shifter is actuated by a lever 54 pivotally mounted intermediate the ends thereof on the side of the table 2, as at 55, and is offset as shown in Figure 2, to allow for the variation in the relative positions of the belt shifter bar 49 and the

side of the table T for pivotal connection of the lower end of the lever with the shifter bar, as at 56, the opposite end of the lever being arranged with a hand grip 57 for the manipulation of the lever. The manipulation of the lever 54 actuates the heating unit to different positions relative to the rails 24 through a bell crank 58 pivotally mounted on top of the table T having one end thereof extended into the path of movement of and arranged to be engaged by the lever 54, and at the opposite end pivotally connected, as at 59, to one end of a link 60 having the opposite end 61 bent at a right angle and pivotally connected to an extended right angular portion 62 of one of the heating unit supporting arms 47. By the moving of the lever 54 to shift the belt to the pulley 52 the link 60 will assume the position shown in full lines in Figures 3 and 4, by the moving of the heating unit toward the caps on the rails 24 caused by the weight and the eccentric mounting of the heating unit relative to the extended portion 62. By actuating the lever 54 to shift the belt onto the loose pulley 55 the lever 54 will engage and move the bell crank 58 to the position shown in Figure 2, and through the link 60 the heating unit will be actuated away from the caps on the rails 24, as shown in dot and dash lines in Figure 4.

For the positioning and securing of impervious linings to the heated cap pads the caps are intermittently delivered by the reciprocation of the feed rack 27 to punch and die mechanism carried by a slide 63 mounted to have vertical sliding movement in a standard 64 fixed to the top of the table T, and said slide pivotally connected to a crank arm 65 connected with a strap 66 loosely encircling an eccentric 67 (Figure 6) fixed on the drive shaft 22 to impart reciprocatory movement to the slide. The slide is arranged with a laterally extending arm 68 fixedly carrying a punch 69

having an enlargement 70 at the end, as shown in Figures 10 to 15. The punch is extended through a perforation in the slide arm 68 and adjustably secured by a perforated plate 71 fixed in superposed relation to the arm 68 by studs 72 threaded in the arm and secured in alined perforations in the plate by nuts 73 threaded onto the studs and abutting both surfaces of the plate, the upper threaded end of the punch being engaged in the perforation of the plate with an annular enlargement 74 on the punch abutting the under surface of the plate and secured to the plate by a nut 75 clamping the plate to the punch enlargement 74. The punch extends below the slide arm 68 in alinement with the space between the cap supporting rails 24 and a support in the form of a post 102 for a cap positioned relative to said support on the rails 24 by the feed rack 27 and co-operating with a die to sever linings from a web W. The web comprises a material which is not only impervious to moisture but also to the deteriorating action of the contents of a receptacle to which the closure cap is applied, usually comprising tin foil, having one face arranged with an adhesive coating, such as rubber, which is non-viscous under normal temperature and is adapted to be rendered viscous by an elevated temperature. The die comprises a tubular member 76 having an enlargement 77 at one end with a transverse recess therein of rectangular shape in cross section and of greater width than the diameter of the bore through the tubular portion 76 to serve as a guide and support for the web, the shoulder formed by said enlargement constituting the cutter edge of the die with which the punch co-operates to sever lining disks from the web, as shown at 78. The die is carried and slidably mounted on the punch to participate in the movement of the punch so that the punch and die

may have movement relative to each other by a sleeve member 76' engaged upon the punch and extending through the perforation in the slide arm 68 through which the punch extends, said tubular member having an enlargement 77' with a transverse recess similar to the die 76 and arranged in opposed relation to said enlarged portion of the die, as shown in Figures 10 to 15. The tubular die portion slidably engages in a perforation of a support and guide 79 for the web W extending transversely of the table and through an opening 80 in the slide support 64 and an opening 80' in the slide 65, (Figure 11,) and supported upon the bottom wall of the opening 80 and one of the supports 85 for a cap supporting rail 24, said guide and support 79 being arranged above and in contiguous relation to the cap supporting rails 24. The die has a predetermined movement through a perforation 79 in the guide 79 limited by the enlargement 77 of the die engaging the guide 79, to engage the tubular portion 76 with a pad P in a cap C fed along the rails 24 and positioned relative to the support 102 (Figures 13 and 14) to serve as a guide for a lining disk severed from the web by the punch and positioned by the punch to the cap pad on the support 102. The carrier sleeve 76' slidably engages a perforation in an inwardly extending annular flange 82 of a tubular member 81 superposed to the web support 79, said tubular member or housing 81 having oppositely disposed guide openings 81' in line with the guide recesses in the enlarged portions 77, 77' of the die 76 and its carrier 76'. The die is normally urged to position with the tubular portion 76/out of the path of travel of the caps upon the rails 24 by a spring 83 coiled about the sleeve 76' and confined between the flange 82 and nuts 84 threaded onto the sleeve 76'. The web is delivered from a roll R of such web to the punch and die mechanism with the adhesive surface lowermost, and in the

operation of punching linings therefrom the punch is actuated to sever a lining disk from the web, the punch assuming substantially the position shown in Figure 12, the lining disk severed from the web being guided through the tubular portion of the die by the punch.

During this operation of the punch the die is retained in its uppermost position by the spring 83, and as the punch assumes the position shown in Figure 12 the slide arm 68 engages with the nuts 84 on the die carrier thereby imparting simultaneous movement to the punch and die and moving the tubular portion of the die 76 into engagement with the pad in the closure cap and the punch positioning the severed lining disk against the heated pin for adhesion thereto, as shown in Figure 13.

To effect adhesion of the severed lining to the sealing pad of the cap by the heat from the pad, pressure is applied to the severed lining before the cap is moved by the feed rack 27 away from the punch and die mechanism. This pressure is applied by a plunger 85 slidably mounted in the punch with the lower end arranged with a head 86 slidable in the enlargement 70 in the punch, the upward movement of the plunger being limited by the shoulder formed at the juncture of said head and plunger abutting the shoulder formed at the enlargement of the punch bore. The head 86 is normally positioned within the punched head 70, as shown in Figure 10, 12 and 13 by a spring 87 coiled about the plunger and confined between the punch nut 75 and a head 88 fixed to the end of the plunger. During the positioning of the severed lining in the cap by the punch and die, the plunger is actuated to impinge the lining against the cap pad, as shown in Figure 14, by a vertical reciprocatory kicker in the form of a plunger 89 slidably mounted in sleeve portions 90 and 92 extending parallelly from a standard 91 (Figures 10, 12 and 13) mounted on the table T at the side of the cap supporting rails 24. The kicker extends through per-

foration in the table and has a bifurcated head 93 fixed to the end rotatably carrying a roller 94 between the bifurcation legs to follow a cam 95 fixed to the drive shaft 22 to impart movement to the kicker in an upward direction just prior to the return movement of the slide 63, as shown in Figure 14. The kicker 89 is urged in a downward direction to cause the roller to follow the cam 95 by a spring 96 coiled about the kicker plunger 89 and confined between the sleeve 90 and a collar 97 fastened to the kicker above the sleeve 92. The kicker plunger 89 actuates the plunger 85 to impinge the head 86 of said plunger against the lining, as shown in Figures 14 and 15, through the engagement of a lever 98 pivotally mounted intermediate the ends thereof between the bifurcation legs of a head 99 fixed to the end of a post 100 fixed in and extending upward from the slide 63 and positioned between the punch mechanism and kicker plunger 89, one end of the lever engaging between the bifurcation legs of and pivotally connected to the head 88 of plunger 85, and the opposite end extending over an adjustable abutment 101, in the form of a set screw threaded in the end of the kicker plunger 89, the lever engaging said abutment at the end of the downward movement of the slide 63 of the punch and die engaging the pad in the cap, as shown in Figure 15. In said position the kicker is moved upward by the cam 95 engaging the abutment 101 with and rocking the lever 98 and moving the plunger 85 against the tension of spring 87 and impinging the plunger head 86 under pressure against the lining in a cap, as shown in Figure 14, and maintaining the plunger 85 in such position during the receding movement of the punch and die, as shown in Figure 15, the plunger head 86 also serving to strip the lining from the punch and die. The plunger head 86 recedes to its normal position at the commencement of the advancement of the caps on the rails 24

by the movement of the feed rack 27 in the direction toward the punch and die mechanism by the change of position of the roller 94 relative to the cam 95 effected by the rotation of the cam and the return of the kicker plunger 89 under the influence of the spring 96 and of the plunger 85 by the force of the spring 87.

The web W of lining material is fed to the punch and die mechanism along the support and guide 79 from a roll R of such web carried on a reel 105 rotatably supported by an arm 104 of a bracket 103 fixed to and extending from the table 7. The web is fed from the web roll to the web support and guide 79 of the punch and die mechanism below a roller 106 rotatably supported between parallel side guide flanges 107 of said guide which terminate at the die housing 81 and continues at the opposite side of said housing. The web is delivered from below the roller 106 to the punch and die mechanism through the guide slots 81' of the die housing and enlargements 77, 77' of the die 76 and its carrier 76'.

The web is intermittently fed or drawn across the support and guide 79 relative to the punch and die mechanism by a pair of superposed rollers 108 and 109 fixed to rotatable shafts 110 and 111 and positively driven one from the other by meshing gears 112 and 113 fixed on the end of each of the shafts 110 and 111. The roller 109 is mounted between the legs of a U-shaped standard 114 fixed to and projecting up from thimble 7 with the legs arranged with bifurcations 115 terminating above the mounting of the roller 109 and having ribs 116 extending from the opposed faces for the slidable engagement of grooves or slideways 117 arranged adjacent the marginal edges of a block 118 having a bifurcation 119 at the lower end with the bifurcation legs perforated for the mounting of the shaft of roller 108, the upper end of the block being weighted and flared out-

wardly to form an hand grip for the manipulating of the block to move the roller 108 out of and into engagement with the roller 109. The weight of the block maintains the gear 112 in mesh with gear 113 and the roller carried thereby in contact with roller 109. The rollers 108,109 are rotated intermittently and during the period of rest of the punch and die mechanism and simultaneously with the feeding of the caps on the supporting rails 24, by a gear 120 fixed on a shaft 121 rotatable in lateral extensions 122 of the standard 114 and held against movement by a split collar 123 embracing and frictionally engaging the periphery of a disk 125' (Figure 8) with a predetermined force by a screw to draw the collar sections to the disk, and thus preventing overthrow and backlash of the feeding rollers. The collar is anchored on the standard 114 by a pin, as shown in Figures 2 and 8. The gear 120 meshes with the roller gear 113 and is intermittently rotated by the rotation of a ratchet wheel 124 fixed on the shaft 121 and intermittently rotated by a pawl 126 pivotally carried by a rocker, in the form of a plate 125 loosely mounted on the shaft 121 between the gear 120 and ratchet wheel 124, the pawl 126 being urged into engagement with the ratchet wheel by a spring 127. The rocker plate is rocked or reciprocated by a link 128 pivotally connected to an extension of the plate and to one end of a lever 129 pivotally mounted intermediate the ends thereof in a bifurcated bracket 130 fixed to and extending from the table T. The opposite end of the lever is arranged with an elongated slot 131 for the adjustable engagement of a bolt carried at one end of a rod 132, the opposite end of the rod being connected to a strap 133 loosely embracing an eccentric 134 fixed to the drive shaft 22, whereby reciprocatory movement is imparted to the rod 132 and through the lever and link connection thereof with the rocker plate 125 actuating the rocker and

as it is moved in
/one direction engaging the pawl and ratchet wheel and rotating said wheel and gear 120 a predetermined distance, which distance may be varied by the adjustment of the pin and slot connection 131 between the rod 132 and lever 129, the distance being determined by the length of the web desired to be fed measured by the diameter of the disk.

To prevent the breaking of the web due to the pull thereon by the feeding rollers 108, 109 from the reel 103, tensioning and supplementary feeding means are provided to feed the web from the web reel 103 to the punch and die mechanism, with a slack portion of the web W interposed between the web roll and the punch and die mechanism, said means comprising a flanged roller 135 rotatably mounted on an extension 136 of the bracket 105 extending at substantially a right angle to the reel carrier extension 104, about which roller the web is led from the web roll and guided to a flanged feed roller 137 fixed to one end of a shaft 138 rotatably supported by bracket 105 at the juncture of the extensions 104 and 136, the shaft 138 extending to the opposite side of the bracket 105 through a boss thereon and has a sprocket wheel 139 fixed thereto for operatively connecting and driving the roller 137 from the driving means for the feed rollers 108, 109, to intermittently rotate said roller 137 synchronously with the rollers 108, 109. This connection comprises a sprocket chain 140 engaging the sprocket wheel 139 and a sprocket wheel 141 fixed to a shaft 142 rotatably mounted in a bracket 143 supported on the table T adjacent to the standard 114, and operatively connected with the drive gear 120 by a gear 144 on shaft 142 meshing with a gear 145 rotatably supported by the bracket 143 and meshing with the roller gear 115, as shown in Figures 19 and 20. The web is maintained in contact with the roller 137 by the weight of a idler roller 146 rotatably carried to engage the web between the

flanges of roller 137 adjacent one end of a lever 147 pivotally mounted at the opposite end on the bracket 105 and arranged to yieldingly urge the roller 146 into engagement with the web on roller 137 by a spring 148 coiled about the mounting of the lever with one end fixed to the arm 105 by bending the said end to engage under a flange of said arm and the opposite end of the spring bent laterally and engaged over the upper edge of the lever, as shown in Figure 19. From the roller 137 the web is led to the guide and support 79 under the roller 106 with the slack portion interposed, the roller 106 being arranged relative to the feeding rollers 108,109 so that the web will extend in a substantially horizontal plane during the severing of a lining therefrom to assure an even severing of the lining.

30

To prevent the feeding of the web relative to the punch and die mechanism with a consequent waste thereof with no cap positioned on the supporting rails 24 in register with the punch and die mechanism, means are provided to hold the pawl out of engagement with the ratchet wheel upon the actuation of the pawl carrying rocker 125 and thereby prevent the rotation of the gears 120, 113 and 112, said means comprising a lever or bar 149 pivotally mounted intermediate the ends on the standard 114, one end of the lever extending over the cap rails 24 and being weighted, as at 150, to urge said end of the lever in a downward direction, and having a member 151 fixed thereto to extend in superposed relation to the cap engaging space between the rails 24 and having a finger extended into an indent 152 in the edge of the web guide 79 to be engaged by the flange of the caps to lift the weighted lever end 150 thereby rocking the lever to depress the opposite end, which is of curved formation, as at 153 in Figure 6, and engages below a pin 154 extending laterally from the pawl 126, this movement of the lever per-

mitting the pawl to engage the ratchet wheel and actuation thereof by the rocking of the pawl carrying rocker 125 and the actuation of the feed rollers 108, 109 through the gears 120, 113 and 112. When there is no cap on the rails 24 below the finger of member 151 the member 151 will move by the weight of the end 150 downward between the rails 24, it being limited in this movement by an adjustable abutment in the form of a set screw 155 threaded into a vertical perforation in the end 150 to abut one of the guide edges 44, and this downward movement of the lever end 150 will move lever end 153 upward and through the engagement of said end with the pawl pin 154 move the pawl 126 out of engagement with the ratchet wheel 124, thereby stopping the rotation of the rollers 108, 109 through the breaking of the connection between the pawl carrying rocker 125 and gear 120.

To prevent the accumulation of the adhesive of the web on roller 109, which may be rendered somewhat viscous on the remaining portion of the web from which linings have been severed, due to heat created by the operation of the punch and die mechanism, a scrapper in the form of a curved plate 156 is carried by angle brackets fixed to the standard extensions 122, one edge of said plate being arranged in scraping relation to the roller 109 and the other end extending to a lower plane for the disposal of the accumulation of the adhesive thereon by gravity.

To facilitate the threading of the web to the web feeding means a hand knob 110' is fixed to the extended end of the roller carrying shaft 110, and whereby web feeding movement may be imparted to the feed rollers 108, 109.

To assure an intimate adhesion of the severed linings positioned on the pads P the caps are advanced from the punch and die mechanism by the reciprocation of the feed rack 27 to means to successively subject the linings assembled on the

pads in caps to heat and pressure. This means comprises a pair of heated plungers slidably mounted in the arm 68 of the slide 63 in parallel relation to the punch and die and moved by the movement of the slide into and out of engagement with caps on the supporting rails 24 positioned in alinement with said plungers. Each of the plungers comprises a tubular shank 157 slidably mounted in a bore in the slide arm 68, the end of the shank extending above the member 68 having an annular enlargement 158 to abut the member 68 to limit the downward movement of the shank. The lower end of the shank carries a head in the form of a plug 159 of heat conducting material and of a diameter equal to the diameter of the lining, said head being threaded into the bore of the shank and carrying an electric heat-ing unit to heat the same, comprising a carrier 160 of electric insulating and heat conducting material having embedded therein an electric resistance wire 161 connected to a source of electricity by conductors 162 supported by a terminal plug 163 of insulating material inserted in the bore of the shank at the upper end with an annular enlargement thereof abutting the end of the shank and enclosed in a cap member 164 threaded onto the end of the shank extending beyond the enlargement 158, the cap having an opening therethrough for the passage of the conductors leading from a recess 165 to accommodate the plug 163 and the electrical connections of the conductors therewith. The head 159 is maintained with a yielding pressure against a lining positioned in a cap during the downward movement of the slide 63 by a spring 167 coiled about the shank and confined between a collar 166 fixed on the lower end of the shank and the slide arm 68, the collar 166 also limiting the movement of the head 159 toward the cap on the rails 24 by engaging with the rails 44 to retain the caps on the support-ing rails 24. By this arrangement sufficient force is applied to the

lining without forcing the cap through the bevelled edges 26 of the rails 24 and assure an intimate adhesion of the linings to the pads. Both of the plungers are of similar structure and operate simultaneously upon different caps during the period of rest of the caps on the rails 24.

To maintain an intimate adhesion of the linings to the pads the caps are advanced from the heating plungers to means to place them under pressure as they cool. This means comprises a disk 168 fixed on a shaft 169 rotatably supported at one end in a bearing sleeve 170 fixed to the table T and in a hub portion of a bracket 171 mounted on the table T to extend upward and overhang the disk 168. The shaft 169 is rotated through a gear 172 fixed to the shaft and meshing with a pinion 173 fixed to one end of a shaft 173' rotatably supported in a bearing sleeve 174 fixed to and extending below the table T, a bevel gear 175 on the lower end of the shaft meshing with a bevel pinion 176 fixed to the drive shaft 22. The upper surface of the table is in a plane with the cap supporting rails 24, and the caps are delivered from said rails to the table by the feed rock 27. To place the linings assembled on pads in caps on the table under pressure to maintain an intimate adhesion of the linings when the caps are cooled a series of plungers 177 are circumferentially spaced around the table, said plungers being slidably carried by a pair of superposed ring members 178,179 fixed in spaced relation on the shaft 169 superposed to the table 168. The plungers are urged into engagement with the table by springs 182 coiled about the plungers with one end fixed to the plungers and the opposite end abutting against the upper ring member 178. The ratio of the gearing 172 to 176 is such so as to rotate the table a distance equal to the spacing of the plungers 177 upon each cap feeding movement of the feed rock 27 and thus deliver caps from the supporting rails 24

to the successive plungers 177.

To release the plungers from the caps on the table and permit the positioning of caps on the table 168 in interposed relation to the plungers, each plunger carries a roller on a stud fixed in the plunger above xx the ring member 178 to extend laterally of the periphery of said ring member 178, as shown at 181, which rollers ride up an arcuate cam member 180 supported upon the table T by the rotation of the plungers with the table 168, thus moving the plungers successively away from the table against the tension of the springs 182 and maintaining them in such position until they pass the delivery end of the rails 24 and a cap has been delivered onto the table and positioned relative to a plunger when the plunger rollers ride off from the cam member and the plunger engages a cap on the table positioned relative thereto. As the plunger rollers 181 ride up the cam 180 and the plungers are moved out of engagement with caps on the table such caps by the rotation of the table engage an abutment (not shown) intersecting the path of travel of the caps and arranged to direct the caps from the table to a chute 183.

It will be obvious that various modifications may be made in the construction and arrangement of parts without departing from the scope of the invention, and that portions of the invention may be used without others and come within the scope of the invention.

701

913

Having thus described my invention, I claim:

1. In apparatus for assembling and securing impervious linings in closure caps, punch and die mechanism, means to intermittently feed and position caps relative to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the same, and means to feed a web of impervious material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism to effect an adhesion between the linings and the caps.

2. In apparatus for assembling and securing impervious linings to sealing pads in closure caps, punch and die mechanism, means to intermittently feed and position caps with sealing pads assembled therein relative to the punch and die mechanism, means for producing an elevated temperature through which the caps pass as they are fed to the punch and die mechanism, and means to feed a web of impervious material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned by the punch to effect an adhesion between the linings and the heated sealing pads of the caps.

17. In apparatus for assembling and securing impervious linings to pads in closure caps, punch and die mechanism, means to intermittently feed and position caps to the punch and die mechanism and pass the caps through a zone having an elevated temperature, means to feed a web of impervious material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned by the punch in the caps, and means to guide and position the linings centrally of the caps.

2[illegible]. In apparatus for assembling and securing impervi-

ous linings to pads in closure caps, punch and die mechanism, a cap support, means to intermittently feed and position caps on the support relative to the punch and die mechanism and to pass the caps through a zone having an elevated temperature, means to feed a web of impervious material having an adhesive surface normally non-viscous from a roll of such web to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps to effect an adhesion between the linings and the pads, and said feeding means normally inoperative to feed the web and adapted to be rendered operative by a cap on the support to be positioned relative to the punch and die mechanism upon the successive actuation of the cap feeding means.

3 X. In apparatus for assembling and securing impervious linings in closure caps, punch and die mechanism, means to intermittently feed and position caps relative to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the same as they are fed to the punch and die mechanism, means to feed a web of impervious material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps, and the adhesive surface thereof rendered viscous by the heated cap, and means to which the caps with the impervious linings assembled therein are delivered from the punch and die mechanism to place the linings under heat and pressure to effect intimate adhesion between the linings and the caps.

4 X. Apparatus for assembling and securing impervious linings in closure caps as claimed in claim 1, wherein the die is arranged to guide and the punch to position the linings severed from the web centrally of the caps.

5 X. In apparatus for assembling and securing impervi-

ous linings in closure caps, reciprocatory punch and die mechanism, means to intermittently feed and position caps to the punch and die mechanism, means to feed a web of the lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps, means to which the caps with the linings are delivered from the punch and die mechanism to place the linings under heat and pressure to effect an intimate adhesion of the linings in the caps, and means to which the caps are delivered from said latter means to place the same under pressure to maintain adhesion between the linings and caps during the cooling period.

6. In apparatus for assembling and securing linings in closure caps, reciprocatory punch and die mechanism, means to intermittently feed and position caps to the punch and die mechanism, and pass the caps through a zone having an elevated temperature to heat the same, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings, the lining severed from the web being positioned by the punch in a cap, and the die being arranged to engage in the cap and guide the lining as it is positioned by the punch in the cap, means to which the caps with the linings are delivered from the punch and die mechanism to place the linings in the caps under heat and pressure to effect an intimate adhesion thereof, and means to which the caps are delivered from said latter means to place the same under pressure during the cooling to effect and maintain adhesion between the linings and the caps.

9. In apparatus for assembling and securing linings in closure caps, punch and die mechanism, means to intermittently feed and position the caps to the punch and die mechanism, heating means operatively positioned juxtaposedly of

the cap feeding and positioning means to heat the caps as they are fed to the punch and die mechanism, and means to feed a web of lining material having an adhesive on one surface to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the heated caps rendering the adhesive surface of the lining viscous and effecting an adhesion between the linings and the caps.

716. In apparatus for assembling and securing linings in closure caps, punch and die mechanism, means to intermittently feed and position the caps to the punch and die mechanism, heating means to produce a zone having an elevated temperature to heat the caps as they are fed to the punch and die mechanism, said heating means being adjustably supported superposed to the path of travel of the caps, means to feed a web of lining material having an adhesive surface to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps to effect an adhesion of the linings to the caps, and means to render the apparatus operative and inoperative, and adapted when actuated to render the apparatus operative to position the heating means superposed to the travel of the caps and move the heating means to a position remote to the travel of the caps when said means is actuated to render the apparatus inoperative.

814. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps below and intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said relative support to the punch and die mechanism, and pass the caps through a zone having an elevated temperature as they are fed to the punch and die mechanism to heat the pads, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch

and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism, and means operative synchronously with the actuation of the punch and die mechanism to which the caps with linings are delivered from the punch and die mechanism to place the linings under heat and pressure to render the same viscous and effect an adhesion between the linings and the pads.

9 12. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps arranged below and intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said supporting means relative to the punch and die mechanism as they are fed to the punch and die mechanism, and pass the caps through a zone having an elevated temperature to heat the pads, means intermittently operative to successively deliver the caps relative to said feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect infusion of the adhesive and an adhesion between the linings and the pads.

10 13. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps, means to intermittently feed and position caps on said support relative to the punch and die mechanism and as they are fed to the punch and die mechanism pass the caps through a zone having an elevated temperature to heat the pads, means operative in sequence with the actuation of the cap feeding and positioning means to deliver the caps to the support relative to said feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect infusion of the adhesive and an adhesion between the linings and the pads.

11 14. In apparatus for assembling and securing linings

to pads in closure caps, punch and die mechanism, means to support caps in alinement with the punch and die mechanism, means to intermittently feed and position caps on said supporting means to the punch and die mechanism, means to supply the caps to the supporting means relative to said feeding and positioning means, an electric heating unit intermediate the punch and die mechanism and the cap supplying means for producing an elevated temperature to heat the pads in the caps, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

12 16. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, means to support caps in alinement with the punch and die mechanism, means to intermittently feed and position caps on said supporting means to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the pads, means to supply caps to the supporting means relative to said feeding and positioning means comprising a rotatable disk to support and aline caps thereon with the supporting means, and a finger reciprocated by the actuation of the cap feeding and positioning means to deliver caps from the disk to the supporting means relative to the feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps relative to the pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

2167

919

13 16. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said support to the punch and die mechanism, an adjustable electric heating unit to be positioned to extend in superposed relation to the pads in the travel of the caps on the support as they are fed to the punch and die mechanism to heat the pads and be adjusted to a position remote to the caps on the support, and means to feed a web of lining material having an adhesive surface normally non-viscous from a roll of such material to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the heated pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

49

17 17. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material to the punch and die mechanism to be severed into linings and positioned centrally in the caps by the punch and die mechanism, a support and guide for the web interposed between the punch and die mechanism and cap supporting means to one end of which the web is delivered from a web roll with a slack portion between the web roll and support and guide, and intermittently operative means arranged at the opposite end of said support and guide to draw the web across the support and guide relative to the punch and die mechanism.

//

18 18. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material from a roll of such web to the punch and die

mechanism to be severed into linings and the linings positioned in the caps by the punch and die mechanism comprising a support and guide for the web to the punch and die mechanism, intermittently operative means arranged at one end of the support and guide to draw the web across the same, and intermittently operative means to deliver the web from the web roll to the opposite end of the support and guide with a slack portion of the web interposed between said latter means and the support and guide.

per A — the web drawing and delivering means being actuated in synchronism with each other

per B = 16 ~~14~~. Apparatus for assembling linings in closure caps as claimed in claim 15 ~~13~~, wherein the intermittently operative means to draw the web across the support and guide comprises a pair of rollers between which the web is engaged, a ratchet wheel operatively connected with said rollers, a rocker pivotally supported on the axis of the ratchet wheel, a pawl pivotally carried by said rocker to engage the ratchet wheel, and means to oscillate the rocker.

= 17 ~~15~~ 20. Apparatus for assembling linings in closure caps as claimed in claim 15 ~~13~~, wherein the means to deliver the web from the web roll to the support and guide comprises an intermittently rotated roller, and rollers to guide the web from the web roll to and maintain it in contact with said intermittently rotated roller.

= 18 ~~16~~ 21. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material from a roll of such web to the punch and die mechanism to be severed into linings and the linings positioned in the caps by the punch and die mechanism comprising a support and guide for the web to the punch and die mechanism, a pair of rollers arranged at one end of the support and guide between which the web is engaged and operative to draw the web across the support and guide, a ratchet wheel operat-

ively connected with said rollers, a rocker carrying a pawl to co-operate with the ratchet wheel to effect intermittent rotation thereof and intermittent feeding movements of the rollers, a roller arranged at the opposite end of the support and guide to deliver the web from the web roll, said roller being operatively connected with and intermittently rotated from the ratchet wheel, and rollers to guide the web from the web roll and maintain the web in contact with the latter feed roller.

1910. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a cap support, means to feed and position caps on the support relative to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of and with the adhesive surface abutting the pads by the punch and die mechanism, and electrically heated plungers to which the caps are successively delivered from the punch and die mechanism to place the linings under heat and pressure and effect an intimate adhesion between the linings and the pads.

1914. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a cap support, means to feed and position caps on the support relative to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of and with the adhesive surface abutting the pads by the punch and die mechanism, electrically heated plungers to which the caps are successively delivered from the punch and die mechanism to place the linings under heat and pressure and effect an intimate adhesion between the linings and the pads, and means to which the caps with the linings are delivered from the heated plungers to place the

97/34

pads and linings under pressure during the cooling thereof.

~~21~~. In apparatus for assembling linings in closure caps, a cap support, punch and die mechanism superposed to the cap support to sever linings from a web of lining material having an adhesive surface and position the severed linings in a cap on the cap support comprising a reciprocatory punch and a tubular die slidable on and reciprocatory with the punch and one movable relative to the other, said die being arranged to engage within the cap on the support and guide a severed lining as it is positioned by the punch in the cap.

22 ~~26~~. In apparatus for assembling linings in closure caps as claimed in claim 21, means to engage and hold the lining to the cap and strip the lining from the punch and die as they recede from the cap.

23 ~~26~~. In apparatus for assembling linings in closure caps as claimed in claim 21, wherein the punch is tubular, a plunger slidable in the punch operative to engage and hold the lining to the cap and strip the lining from the punch and die as they recede from the cap.

24 ~~21~~. In apparatus for assembling linings in closure caps, a cap support, means to sever a lining from a web and position the same in a cap on the support, comprising a die arranged with a support for the web from which the linings are severed, said die being slidably supported in superposed relation to the cap support and having a tubular portion opposed to the cap support to engage within the cap, said die being normally urged in a direction from the cap support, a punch slidable in the die to sever the lining from the web, and means to actuate said punch and die to engage the tubular portion of the die within the cap, sever the lining from the web by the punch and guide the severed lining through the tubular portion of the die to position in the cap.

711

923

2728. In apparatus for assembling linings in closure caps as claimed in claim 24, means operative in sequence with the operation of the punch and die to engage the lining in the cap and strip the lining from the punch and die as they recede from the cap.

2729. In apparatus for assembling linings in closure caps as claimed in claim 24, a plunger slidably mounted in the punch and normally urged to predetermined position within the punch, and means to actuate and engage said plunger with the lining positioned in the cap by the punch to hold the lining in the cap and strip the same from the punch and die as they recede from the cap.

2730. In apparatus for assembling and securing linings to sealing pads in closure caps, punch and die mechanism, a cap support, means to intermittently feed and position caps in the support relative to the punch and die mechanism, means to heat the cap pads as they are fed to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism for the severing of linings from the web and positioning of the linings relative to the heated pads in the caps by the punch and die mechanism, and means carried by the punch to forcibly impinge the lining against the heated cap pad and effect adhesion of the lining to the cap pad, said means being actuated in sequence to the positioning of the severed lining relative to the cap pad by the punch and die mechanism.

2731. In apparatus for assembling and securing impervious linings to sealing pads in closure caps, punch and die mechanism, a cap support, means to intermittently feed and position caps on the support relative to the punch and die mechanism, and means to feed a web of lining material having an adhesive surface normally non-viscous from a roll of such web to the punch and die mechanism to be severed into linings and positioned in the caps by the punch and die mechanism

comprising an intermittently actuated roller, and rollers to guide the web from the web roll to and maintain the web in contact with the actuated roller.

28 36. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

29 35. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

30 34. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and

713

925

pressure to effect an intimate adhesion between the linings' and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

35. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads assembled therein and a web of lining material having an adhesive surface non-viscous at normal temperature, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the pads, then placing the linings in the caps under heat and pressure to render the adhesive viscous and effect an intimate contact between the linings and pads.

714

926

Signed at Borough of Brooklyn. in the County of Kings and State of New York. this 18th day of November, A. D. 1929.

Inventor's Signature. Full Name. John A. Johnson

Oath.

State of New York, }
County of Kings } ss.:

JOHN A. JOHNSON,

the above-named petitioner, being duly sworn, deposes and says that he is a citizen of the United States and resident of Woodhaven, in the County of Queens, City and State of New York; and that he verily believes himself to be the original, first and sole inventor of the Method and Apparatus for Assembling Linings in Receptacle Closure Caps described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof; or patented or described in any printed publication in any country before his invention or discovery thereof or more than two years prior to this application; or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application and that no application for patent on said improvement has been filed by him or his representatives or assigns in any country foreign to the United States,

Inventor's Full Name. John A. Johnson

Sworn to and subscribed before me, this 18th day of November, A. D. 1929

[L. S.] (Signature of Justice or Notary): Herman A. Fulton

NOTARY PUBLIC No. 1099, QUEENS CO
QUEENS COUNTY REGISTER No 2201
CERTIFICATE FILED IN KINGS CO CLERK No 100
KINGS COUNTY REGISTER No 385

(Official Character):

† If any such application for foreign patent has been filed twelve months prior to this application, the applicant shall state the country or countries in which application has been filed, giving the date of such application.

NOTE.—If the Oath be taken before a Notary Public, Seal must be attached. If before a Justice of the Peace, a Certificate of the Clerk of the Court is required.

715

1927

Div. 14 Room 102-A

Address only
"The Commissioner of Patents,
Washington, D. C."
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 3

All communications regarding this application should give the serial number, date of filing, and name of the applicant

R/V

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

Applicant: John A. Johnson

Ser. No. 409793
Filed Nov. 26, 1929
For METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

John C. Seifert
277 Broadway
New York, N. Y.

MAILED
SEP 10 1930

This case has been examined and the art cited is as follows:

			(Filed Feb. 25, 1928)
Lundell et al,	1,738,781,	Dec. 10, 1929,	113-80
Bogdanffy,	1,169,608,	Jan. 25, 1916,	113-80
Snyder,	1,466,034,	Aug. 28, 1923,	271-2.2

The omitted lead line from the numeral 100 to the p mentioned on page 15, lines 14 and 15, should be applied t figure 13 of the drawings.

A noun properly designating the non-viscous material carried by the linings or pads described on page 10, lines 4 and 5, should be inserted after "non-viscous."

Claims 1, 3, and 9 are rejected as completely met in the patent to Bogdanffy, above cited.

Claims 2, 5, 7, 11, 12, and 13 are rejected as failing to patentably distinguish from the patent to Bogdanffy. All the elements called for in the patent are present as is obvious. These claims cannot be allowed merely on the purpose of the construction set forth in the introductory clauses, nor upon the statement that the articles fed are "caps with sealing pads assembled thereon" (claim 2). It is true the patentee is doing a different thing, but the construction called for by these claims and the construction of the patent are identical. It is well settled that claims must distinguish structurally from a reference. Applicant uses the patentees

construction for securing a disk in a metal cap for the purpose of securing impervious linings to sealing pads already in the caps.

In claim 5, line 12, are (first occurrence) should be canceled.

In claim 7, line 10, cap and should be inserted before linings.

Claim 14 is rejected as failing to patentably distinguish from Bogdanffy, it being held that no invention would be involved in substituting an electric heating unit for the gas heating unit of Bogdanffy.

Claims 17 and 18 are rejected as failing to patentably distinguish from Bogdanffy, it being held that no invention would be involved in moving the feeding rolls 70 for feeding the web 67, to the opposite side of the guide along which the web is fed from that on which the web supply 68 is located. No invention would be involved in introducing a slack producing mechanism such as disclosed in the patent to Snyder, above cited, between the web supply 68 and the feeding roll 70 of Bogdanffy. Furthermore, the construction by which the slack portion is produced is not brought into the claims. Referring to claim 18 it is held that no invention would be involved in providing a set of intermittently operating feed rolls, operating separately on the web shown at the bottom of figure 1 at the right, in addition to the web looper between the web reel 68 and the feed rolls 70.

717

929

409793--3

Claim 31 is rejected as failing to patentably distinguish from Bogdanffy or Lundell in view of Snyder. No invention would be involved in providing Snyder's feed and guide roller construction shown in Fig. 1 at the right in feeding and guiding the web in the web rolls of either Bogdanffy or Lundell.

Claims 4, 6, 8, 10, 15, 16, 19 to 30 inclusive, and claims 32 to 35 inclusive are allowable as at present advised.

Claims 6, 19, and 20 should be rewritten to include all the elements in view of the rejection of claims 5 and 18.

Ass N.J. Brumbaugh

Examiner.

718

930

10512 3/a

MAIL DIVISION MAR - 7 31 U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE.

Division 14, Room 102 Annex,
Applicant: John A. Johnson,
Serial No.409,793,
Filed November 26, 1929,
For Method and Apparatus for Assembling Linings in Receptacle Closure Caps.

- -

U. S. PATENT OFFICE MAR 9 - 1931 DIVISION 14

Commissioner of Patents,

Washington, D. C.

Sir:-

In response to the official communication of September 10, 1930, in the above entitled application please amend as follows:

Page 10, line 4, after "non-viscous" insert -, such as caoutchouc, -.

Cancel claim 1.

Claim 2, line 4, change "thereon" to - therein -; line 5, correct the spelling of "temperature"; line 7, after "mechanism" insert - to heat the pads in the caps -, and line 10, after "caps" insert - with the adhesive surface opposed to the pads -, and after "effect" insert - a fusion of the adhesive and -.

Claim 3, line 2, after "mechanism" insert - having a diameter less than the pads -; line 7, change "linings" to - lining disks of less diameter than the pads -; line 8, change "caps" to - heated caps with the adhesive surface opposed to the pads to effect a fusion of the adhesive and uniting the linings to the pads -; and line 9, change "caps" to - cap pads -.

Claim 5, line 12, cancel "are" first occurrence.

Claim 7, line 10, after "linings" insert -in the caps-.

Cancel claim 9.

Claim 11, line 5, after "support" insert - relative -; line 7, before "to heat" insert - as they are fed to the

punch and die mechanism -.

Claim 12, line 5, after "means" insert - relative -; line 6, after "caps" insert - as they are fed to the punch and die mechanism -; line 7, change "to"/second occurrence, to - intermittently operative to successively -; and line 12, before "adhesion" insert - infusion of the adhesive and -.

Claim 13, line 4, after "support" insert - relative-; line 5, after "caps" insert - as they are fed to the punch and die mechanism -; and last line, before "adhesion" insert - infusion of the adhesive and -.

Claim 14, line 9, after "means" insert - and superposed to the travel of the caps -.

Claim 17, last line, after "mechanism" insert - in the inoperative position thereof -.

Claim 18, last line, change the period to a comma and add - the web drawing and delivering means being actuated in synchronism with each other. -.

Claim 30, line 4, change "in" to - on -; and line 8, pluralise "lining".

Cancel claim 31.

REMARKS:

Instructions are being forwarded herewith to the official draftsmen to correct the drawings by applying the lead line from the numeral 100 to the post mentioned on page 15, lines 14 and 15.

The noun"thermochome" designating the non-viscous material carried by the linings has been inserted after "non-viscous" in line 4 on page 10.

Claim 1 has been cancelled without prejudice to the remaining claims because if the claim was amended to overcome the cited patent No.1,169,608,Bogdanffy, it would overlap the remaining claims.

Claim 2 has been amended to more clearly set forth the invention. It is believed claim 2 is allowable over the cit-

ation Bogdanffy, No.1,169,608, as the structure of said citation could not be used to accomplish the results claimed in claim 2 because if the caps having sealing pads therein were delivered to the gas burner 65 the sealing pads would be scorched thus rendering the cap unfit for use. Claim 2 calls for means for producing an elevated temperature and not means for applying heat directly to the inner portion of the cap as disclosed by the cited patent of Bogdanffy.

Claim 3 has been amended to specifically set forth that the diameter of the punch and die mechanism is less than the diameter of the pads and the lining disks are of less diameter than the diameter of the pads and caps. Claim 3 is believed to be in condition for allowance as the apparatus of the citation Bogdanffy does not show means to guide and position the linings centrally of the caps or the pads therein as it is not necessary in said apparatus to centrally position the disk of binding material in caps, the purpose of the binding material of said citation being different than that of the lining disk of the application, as set forth in the specification of the application on page 18, lines 17 to 20, inclusive, which is to protect the sealing pads from the deteriorating action of the contents of a receptacle to which the closure is applied and not to adhere sealing pads in caps.

Reconsideration and allowance of claims 5 and 7 is requested as it is believed said claims patentably differentiate over the citation Bogdanffy, No.1,169,608. The citation Bogdanffy does not disclose means to place the sealing pads under heat and pressure, but the binding material is heated, then the sealing pad is positioned in the caps and then pressure is applied to the sealing pads. The means referred to in claims 5 and 7 are the heated plungers 157 of the application, and claim 7 differentiates over claim 5 by setting forth the additional means of placing the linings and sealing pads under

pressure during the cooling of the adhesive, which is essential to produce a durable cap of this type.

Claim 9 has been cancelled without prejudice to the remaining claims.

Reconsideration and allowance of claim 11 is requested on the same grounds given in connection with claims 5 and 7. Claim 11 differentiates over claims 5 and 7 by setting forth that the heat and pressure means is actuated in synchronism with the actuation of the punch and die mechanism which is essential to have a continuously operative apparatus to produce a maximum number of caps.

Claim 12 has been amended to more clearly set forth the invention and more specifically set forth the structure of the means to deliver the caps to the cap feeding and positioning means. Claim 12 is believed to be allowable over the citation Bogdanffy, No.1,169,608, as said citation does not show intermittently operative means to successively deliver caps to cap feeding strips 38 of the citation. The caps in said citation are delivered to said feeding strips directly from the chute 41, which is not positive in action. The delivering means referred to in the claim is the disk 18 and the ejector member 37 of the application.

Claim 13 has been amended to more clearly set forth the invention and said claim is believed to be allowable over the citation Bogdanffy for the reasons given in connection with claim 12. Claim 13 differentiates over claim 12 by specifically setting forth that the delivery means or ejector member 37 is operative in sequence with the actuation of the cap feeding and positioning means.

Claim 14 has been amended to more clearly describe the structure of the apparatus, and claim 14 is believed to be allowable over the citation Bogdanffy, No.1,169,608, as the use of an electric heating unit in place of the gas heating

unit in combination with the other elements of claim 14 patentably differentiate the claim over the citation since a better result is produced that has heretofore been possible. The electric heating unit co-operates with the other elements of the claim to perform a single function and thus forming a unitary and patentable entity, which constitutes patentable invention because the substitution of an electric heating unit for a gas heating unit in combination with the other elements produces a result not possessed by the combination before the introduction of the new unit and producing the result of heating the pads without scorching which cannot be avoided by the use of a gas flame.

Claim 17 has been amended to more clearly describe the invention and said claim is believed to be allowable over the citations Bogdanffy, No.1,169,608 and Snyder, No.1,466,034, as the specific structure claimed is not disclosed by either of said citations. The guide 69 of the citation Bogdanffy is not interposed between the punch and die mechanism and cap supporting means but is located before the web feeding rollers 70, as stated on page 3, lines 110 to 115, of said citation. The particular arrangement of the punch and die mechanism, and web feeding means is not disclosed by the citation Snyder. Therefore, allowance of claim 17 is requested.

Claim 18 has been amended to more specifically set forth the structure of the web feeding means and it is believed to be allowable over the citations Bogdanffy No.1,169,608 and Snyder, No.1,466,034, as the specific arrangement and operation of the feeding rollers, one adjacent the roll of web and the others adjacent the punch and die mechanism to assure a positive feed of the web without undue strain thereon, is not disclosed by said citations. The material of the web used in the invention of the present application is tin foil, the use of which raises problems that are entirely different then those accompanying the use of paper webs, which type of

web is used in the operation of the apparatus of the aforementioned citations. It is believed the specific arrangement of the feeding rollers as disclosed by the present application to overcome the problems of feeding a web of tin foil required the use of the inventive faculty to devise and, therefore, the claim is believed to be allowable.

Claim 30 has been amended to correct obvious errors. This claim has been deemed to be allowable.

Claim 31 has been cancelled without prejudice to the remaining claims.

Claims 6,19, and 20 have not been rewritten as claims 5 and 18 have not been cancelled, said latter claims being believed to contain allowable subject-matter.

The application is believed to be in condition for allowance and favorable consideration is requested.

Respectfully submitted,

John O. Seifert.

Attorney for Applicant.

277 Broadway,
New York, N.Y.

March 5th, 1931.

724

936

Letter to Depts + Print

MAIL DIVISION
MAR - 7 31
U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE.

Division 14, Room 102 Annex,
Applicant: John A. Johnson,
Serial No.409,793,
Filed November 26, 1929,
For Method and Apparatus for Assembling Linings in Receptacle Closure Caps.

- -

Hon. Commissioner of Patents,
Washington, D.C.

ACCOUNT

Sir:-

It is requested that the official draftsman correct the drawings in the above entitled application, by applying a lead line from the numeral 100 to a post in Figure 13, as indicated in red ink in the accompanying print, charging the cost to my deposit account and advising me of said charge.

OK
MER.
3/9/31

Respectfully,
John O. Sufest.
Attorney for Applicant.

277 Broadway,
New York, N.Y.
March 5th, 1931.

U. S. PATENT OFFICE
MAR 9 - 1931
DIVISION 14

RECEIVED IN DIV. C
MAR 17 1931
DIV. C.

CORRECTION ORDERED
MAR 28 1931
50 R
ACCOUNT

CORRECTED
MAR 28 1931

PRINT RETURNED BY DRAFTING DIV

3/28/31

725

937

14 Room 102 Annex R/EC Paper No. 5

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

MAILED
JUL 30 1931

If communication concerning this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

July 30, 1931

John O. Seifert
277 Broadway
New York, N. Y.

Applicant: John A. Johnson

Ser. No. 409,793
Filed Nov. 26, 1929
For Method and Apparatus for Assembling Linings in Receptacle Closure Caps.

This case, as amended March 7, 1931, has been reexamined.

Applicant's argument has been considered, but no reason is seen for reversing the last office action in connection with the rejection of claim 2 on Bogdanffy of record. The patent completely meets this claim in so far as the elements called for are concerned, and the claim cannot be allowed merely on various functional statements included therein.

Claim 35, formerly considered allowable, is rejected as completely met in the following patent to Warth.

Warth 1,788,280 Jan. 6, 1931 113-80.

Claims 3 to 8, inclusive, claims 10 to 30, inclusive, and claims 32 to 34, inclusive, appear allowable.

Rec

G. R. Smith.
Acting Examiner.

87/50

726

938

Ent 6/8

MAIL DIVISION
SEP - 5 31
U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE.

Division 14, Room 102 Annex,
Applicant; John A. Johnson,
Serial No. 409,793,
Filed November 26th, 1929,
For Method and Apperatus for Assembling Linings in Receptacle Closure Caps,

U. S. PATENT OFFICE
SEP 8 - 1931
DIVISION 14

Hon. Commissioner of Patents,

Washington, D.C.

Sir:-

In response to the official communication of July 30, 1931, in the above entitled application, please amend as follows:

Cancel claims 2 and 35.

The rejected claims having been cancelled without prejudice to the remaining claims the application is believed to be in condition for allowance and favorable consideration is requested.

Error note

At the final numbering of the claims it is requested that the claims be renumbered successively as filed, so that, claims 3 to 8, inclusive, will be claims 1 to 6, inclusive, with the reference numeral "3", in original claim 6, line 2, changed to - 3 -.

Claims 10 to 30, inclusive, renumbered as claims 7 to 27, inclusive. Original claims 19 and 20, line 2 of each claim, change reference numeral "18" to - 15 -. Original claims 25 and 26, line 2 of each claim, change reference numeral "24" to - 21 -. Original claims 28 and 29, line 2 of each claim, change "27" to - 24 -. Claims 32 to 34, inclusive, renumbered as claims 28 to 30, inclusive.

Respectfully,

John O. Seifert.
Attorney for Applicant.

277 Broadway,
New York, N.Y.

September 4, 1931.

727

939

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

191

Serial No. 409,793

Div. 14
MC

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

September 19, 1931

John A. Johnson

Your APPLICATION for a patent for an IMPROVEMENT in METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS
filed Nov. 26, 1929 has been examined and ALLOWED with 30 claims.

The final fee, TWENTY-FIVE DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $25 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $25 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

John O. Seifert
277 Broadway
New York, N. Y.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED ORDERS WILL NOT BE ACCEPTED.

728

940

UNITED STATES AND FOREIGN
PATENTS
TRADE MARKS
DESIGNS
COPYRIGHTS

MAIL DIVISION
MAR -9 32
U.S. PATENT OFFICE

MAR -932 451300 B ~Check — 25.00

MAR -932 451300 B ~Check 10.00

JOHN O. SEIFERT
AND
JOHN A. SEIFERT
PATENTS AND PATENT CAUSES
277 BROADWAY
(CHAMBERS STREET)
NEW YORK, U. S. A.

March 8, 1932.

Hon. Commissioner of Patents,

Washington, D.C.

Sir:-

I enclose check for $35.00 to be applied as the final fee in the application of John A. Johnson, for method and apperatus for assembling linings in receptacle closure caps, filed November 26, 1929, Serial No. 409,793, and allowed September 19th, 1931, with thirty claims.

Respectfully,

John O. Seifert

JAS-EL.

729

941

7

14

TITLE REPORT

No. 1,852,578

Name John A. Johnson

The title appears from the assignment records to be vested in:

inventor

Examined up to and including 4/3/33

This certificate dated 4/13/33

B. H. Gray
Chief of Assignment Division.

h

No further assignments appear to have been received for record including

4/10/33

730

942

Div. 14 Room 5097 R/MO Paper No. 8

Address only
The Commissioner of Patents,
Washington, D. C.,
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications respecting this application should give the serial number, date of filing, and name of the applicant

MAILED
APR 20 1933

(Copy sent to Patentee)

Please find below a communication from the EXAMINER in charge of this application

Thomas E. Robertson
Commissioner of Patents

APR 18 1933

Applicant: John A. Johnson

Ser. No. 400,793
Filed Nov. 26, 1929
For Method and Apparatus for Assembling Linings in Receptacle Closure Caps.
Patent No. 1,852,578 granted Apr. 5/32

John O. Seifert
277 Broadway
New York, N. Y.

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 66201 On or before MAY 15 1933 the statement demanded by rule 110 must be sealed up and filed with the subject of invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count 1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

Count 2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

Count 3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

731

943

Serial No. 409,733 - - 2
Patent No. 1,852,578

The interference involves your patent above identified and an application for Method of Manufacturing Bottle Caps and Apparatus Therefor, filed by Albin H. Werth, of Baltimore, Md., whose post office address is c/o Crown Cork & Seal Company, Inc., Baltimore, Maryland, whose attorneys are Cushman, Darby & Cushman, American Security Bldg., Washington, D. C., and whose assignee is Crown Cork & Seal Company, Inc., Baltimore, Maryland, a corporation of New York.

The relation of the counts of the interference to the claims of the respective parties is as follows:

COUNTS	WERTH	JOHNSON
1	1	28
2	2	29
3	3	30

Counts Compared.

pgk

W. J. Brunschwig

Examiner, Division 14.

732

941

APR 18 1933

INTERFERENCE

Interference No. 66201 *Paper No.* 9

Name, John A. Johnson

Serial No. 409,783 (Patent No. 1,853,578)

Title, Method and Apparatus for Assembling Linings in Receptacle Closure Caps

Filed, November 26, 1929 granted April 5, 1932.

Interference with Albin H. Warth

DECISIONS ON MOTION

Ex'r of Interferences, _____ *Dated,* _____

Board of Appeals, _____ *Dated,* _____

DECISIONS ON PRIORITY

Ex'r of Interferences, Adverse *Dated,* Apr 14/34

Board of Appeals, _____ *Dated,* _____

Court, _____ *Dated,* _____

REMARKS:

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

8/1/57

733

945

113
80

421

1929

CONTENTS:

1	Application papers	26.	
2	Rel Sept 10, 1930	27.	
3	Arnold & A Mch 7, 1931	28.	
4	Letter to Diff + print Mch 7 1931	29.	Ht release
5	Rel July 30, 1931	30.	
6	Addt B Sept 5, 1931	31.	Agree
7.	File Report Apr 13. 1933	32.	
8.	Interf Letter APR 20 1933	33.	
9.	Interf. Blank	34.	
10		35.	
11.		36.	
12.		37.	
13.		38.	
14.		39.	87/58
15		40.	
16.		41.	
		42	

DEFENDANT'S EXHIBIT A

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the

Letters Patent of

Albin H. Warth, Assignor to
Crown Cork & Seal Company, Inc.,

Number 1,899,783, Granted February 28, 1933,

for

Improvement in Bottle Caps and Methods of Manufacturing Same.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this twenty-fifth day of January, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-eighth.

ATTEST:

Chief of Division.

Commissioner of Patents.

735

947

1899783

(Serial of 1929)

492546

PATENT NO.

DATE FEB 2 1933

52-23

DIV. ## 462

(EX'R'S BOOK)

Name ALBIN H. BARTH,

Assignor to Crown Cork & Seal Company, Inc., of Baltimore, Md., a corp. of New York.

of BALTIMORE,

State of MARYLAND,

Invention BOTTLE CAP AND METHOD OF MANUFACTURING SAME

ORIGINAL	RENEWED
APPLICATION FILED COMPLETE OCT. 31, 1930	52/155 24 Jan 33
PAPERS OF APPLICATION FILED: Petition, Specification, Oath, First Fee $30, 2 sheets Drawings, OCT. 31, 1930	
Examined and passed for Issue Dec. 26, 1932. W.W. Cochran Exr. Div. 62	Renewed and passed for Issue ____, 19__ Exr. Div. ____
Notice of Allowance JAN 26 1933, 19__	Notice of Allowance ____, 19__
Final Fee $30 Feb 2, 1933	Final Fee ____, 19__
Attorney CUSHMAN, BRYANT & DARBY LOAN & TRUST BLDG. CITY	
Assist - Cushman, Bryant, Darby & Cushman, American Security	
Associate Attorney [illegible] 2460 Wash., D.C.	

No. of Claims Allowed 6 Print Claim 1 to O. G. Class 215-22

Title as Allowed

BOTTLE CAP AND METHOD OF MANUFACTURING SAME

Division of Appn. No. 360,842, filed May 2, 1929.

0/2

948

492546 -/

Application for U. S. Letters Patent

CUSHMAN, BRYANT & DARBY
ATTORNEYS AT LAW
COUNSELORS IN PATENT CAUSES

PAID DIVISION OCT 31 1930 U.S. PATENT OFFICE

OCT 31-30 72956 A 25.00

U. S. PATENT OFFICE NOV 7 - 1930 DIVISION 14

Petition

To the Honorable Commissioner of Patents
Washington, D. C. U. S. A.

Your petitioner, ALBIN H. WARTH,

a *citizen of the United States, residing* in the City of Baltimore, County of
and State of Maryland, and whose post-office address
is c/o Crown Cork & Seal Co., Inc., Baltimore, Maryland,
pray that *Letters Patent may be granted to*
him *for the improvement in*
BOTTLE CAP AND METHOD OF MANUFACTURING SAME,
set forth in the annexed specification

And he hereby appoint CUSHMAN, BRYANT & DARBY, *a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, Jr., of the City of Washington, District of Columbia, whose register number is* 7196, his *attorneys, with full power of substitution and revocation, to prosecute this application, to make amendments therein, to sign* his *name to the drawings, to receive the Letters Patent, and to transact all business in the Patent Office connected therewith*

Albin H. Warth
(Write first name in full.)

Specification

To All Whom It May Concern

Be It Known, that I, ALBIN H. WARTH,

a *citizen of the United States, residing* in the City of Baltimore, County of
and State of Maryland, *have invented new and useful improvements in*
BOTTLE CAP AND METHOD OF MANUFACTURING SAME,
of which the following is a specification:

737

949

My invention relates to bottle caps and the method of making same, and more particularly to a cap consisting of a metallic shell containing a cushion disk having what is known as a protecting center disk, and to the method of applying this center disk.

Bottle caps of the type to which my invention relates have heretofore been extensively used for sealing bottles containing mineral waters and other fluids having a deleterious action upon the cushion disk within the cap, particularly when this disk is made of composition cork. Ordinarily the facing center disk has been made of tin foil cemented or otherwise attached directly to the cushion disk, or secured

737

thereto by means of a fibrous backing having applied thereto a dry adhesive made tacky by means of a thin film of moisture applied to the cushion disk.

It has been attempted to secure the facing disk upon the cushion disk by means of a liquid cement, but this has proven impracticable because, in order to secure a satisfactory bond, it was necessary to apply the adhesive in quantity having such thickness that, upon the application of pressure to secure the desired intimate relation between the facing disk and the cushion disk, there was a tendency of the disk to slide into an eccentric position in relation to the disk. In order to permit the effective sealing of a bottle with a cap having a tin center or other protective facing, it is essential that the facing disk be accurately centered in relation to the cushion disk so as to avoid any possibility of the neck of the bottle sealing against the facing disk, since this would result in the presence of minute channels or voids at the point of contact of the facing disk with the neck of the bottle. Furthermore, at the points where the line of contact crossed the periphery of the disk, there would be exposure of a small area of the cushion disk to the contents of the bottle.

With the above conditions in mind, the object of my present invention is to provide a bottle cap having a protecting center disk secured in position by a fusible medium devoid of moisture, and thus avoid any possibility of slippage of the disk while pressing it into the necessary intimate relation with the cushion disk.

739
951

The medium used for securing the facing disk in place is of itself insoluble and acid resisting and, being fusible at low temperatures, will form a very thin coating between the facing disk and the cork so as to preclude the possibility, in the event of imperfections in the facing disk, of the cork being attacked by the fluid contents of a bottle.

Insert D

The cementing medium may be readily handled, is not affected by ordinary changes of temperature or atmospheric conditions, may be readily cut to size simultaneously with the cutting of the facing disk so as to secure a bonding stratum co-extensive with the area of the facing disk, and may be quickly fused to secure the desired bonding action between the facing disk and the cushion disk.

In addition to the foregoing characteristics, I am enabled to effectively use a facing disk of fibrous material, since the nature of the bonding medium is such as to firmly adhere to hard finished papers as well as to natural cork or composition cork.

In the commercial production of such caps, it is essential that the facing disk, during production, be cut from a strip of material, and since the edges of the disk cannot be protected by the same material used for waterproofing the surface of the disk, I have found it desirable, after the application of the facing disk, to apply, to the entire surface of the cap exposed interiorly of the cap, a very thin protecting surfacing of water repellent material. This not only serves to prevent adherence of the cork to the neck of the bottle, and to exclude atmospheric air from the exposed portions of the cushion disk before

the cap has been applied to a bottle so as to prevent darkening of the cork by oxidation, but will at the same time, protect the perimeter of the center facing disk to an extent to minimize liklihood of the absorption of moisture at the edge of the disk.

Bottle caps of the general type of which my invention relates must be produced at a very low cost, and the various materials entering into same and the method of assembling and finishing are matters of great desideratum.

The herein described method of making the bottle cap of my invention relates merely to the manner of applying the center facing disk and finishing the cap, it being understood that the assembling of the metal shell and the mounting of the cushion disk therein are entirely independent operations, preparatory to the practicing of the method of my present invention.

The invention consists primarily in a bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellent, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk; and in such other novel characteristics as are hereinafter set forth and described, and to the method of making said caps, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings:

Figure 1 is a bottom plan view upon an enlarged

741

953

scale of a bottle cap embodying the invention.

Figure 2 is a section on the line 2-2 of Fig. 1.

Figure 3 is a vertical section illustrating the first stage of applying the center disk to the cushion disk.

Figure 4 is a similar view illustrating the final stage; and

Figure 5 is a view illustrating a stage intermediate those illustrated in Figs. 1 and 2, used when it is desired to apply a wax finish to the cushion disk.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, notwithstanding that the caps themselves are shown upon an enlarged scale, the dimensions of the facing disk and the intermediate bonding stratum are of greatly increased thickness as compared with the actual materials used, even when compared with the enlarged scale of the other parts of the cap.

A bottle cap embodying the invention consists of the usual metallic shell a having a fluted skirt b. Secured within this shell is a cushion disk c, which may be either of natural, or of composition, cork. Composition cork is more extensively used than natural cork, and the employment of a tin or other center facing disk is particularly desirable with composition cork cushion disks, since the contents of a bottle will more readily attack the binder of the composition cork than it will natural cork.

It is essential, to secure a reliable seal, particularly with carbonated beverages, that the neck of the bottle seal directly against the cushion disk, and not against the center facing disk. This is generally understood, and I follow, in the bottle cap of my present invention, the old practice of using a center facing disk d, the diameter of which is relatively less than that of the cushion disk, so that when the cap is applied to a bottle, the lip of the bottle will be positioned between the facing disk and the skirt b, the contacting area being such as to bring the facing disk to a point at the inner edge of such contacting area.

While heretofore tin centers have been extensively used, it has been found impracticable to use paper disks for this purpose, because in order to make them impervious to gas, and non-absorbent, the finish of the paper had to be such as prevented the formation of a sufficiently good bond between the facing disk and the cushion disk to permit the practical commercial production of such caps.

To correct this condition, it has long been the practice to bond a metal foil, such as aluminum tin, to a fibrous backing, to which latter the cement would firmly anchor. With this construction of the facing disk it was the practice to apply a dry adhesive to the fibrous backing strip and to make this adhesive tacky by the application of moisture to the cushion disk immediately prior to the coating of the facing strip and the application of the disk cut therefrom to the cushion disk.

While caps, having a facing disk of the character immediately above described, have been extensively used, their production cost, as compared with the required low cost of such caps, has been very high.

In the cap of my invention, the center disk 5 is composed of a glazed hard paper, such as is generally known as express paper, sulphite paper or bleached Kraft paper having a water-finish, i.e., high-gloss finish. Such papers are, of themselves, independently of the finish, fairly non-absorbent, and when required for pasting purposes, are usually provided with a dry gummed surface. The process of producing such gummed paper results in a curl in the paper.

While such hard tough papers are extremely desirable because of their inherent non-absorbent, gas impervious qualities, their use in bottle caps of the type to which

my invention relates was impracticable, prior to my invention, because of the difficulties of feeding and cutting previously gummed paper and of cementing same to the cushion disk.

In the cap of my invention, however, to obviate these difficulties, I use ungummed paper of the type above referred to, and secure it to the cushion disk by means of a disk of what is known as gutta-percha tissue, which material, in strip form, may readily be handled in a machine and collated with a facing disk paper strip so as to permit a disk of the paper and a disk of the gutta-percha to be simultaneously cut by the same dies. This not only simplifies the production of the cap, but results in a bonding stratum e between the facing disk and the cushion disk co-extensive in area with the facing disk itself. The strip of paper from which the disk d is cut is indicated at d', while the strip of gutta-percha forming the stratum e is indicated at e'.

Gutta-percha is particularly desirable as a bonding medium, not only because it ensures the distribution of the bonding stratum throughout the entire area of the facing disk, but because it will readily adhere, when softened to the desired extent, to the cork or composition cork, and to hard paper. Furthermore, it possesses the qualities of being non-absorbent and non-impervious to gases. The tissue itself is very thin, about a thousandth of an inch, and when softened, instantly adheres to the cork and to the paper, and is not subject to side sliding or slippage, such as liquid cements. The gutta-percha is not affected by fruit acids, minerals, CO_2 or other

ingredients present in the fluid contents of bottles with which such caps are designed to be used.

The gutta-percha may be fused or melted at temperatures sufficiently low to avoid injury to the other previously assembled portions of the cap, and will return to its former solid form at normal temperatures with considerable rapidity.

In the finished cap, particularly when such caps are desired for use with spring water or mineral waters, it is desirable, after the application of the center disk, to apply a very thin superficial coating f of water repellent material, such as paraffin, Ceresin or other waxes, throughout the exposed faces of the cushion and center disk. This coating serves to prevent adherence of the cushion disk to the neck of the bottle, due to the action of the water upon the cork or upon the binder of composition cork, and also serves to more or less effectively seal the raw edges of the paper of the center disk, and prevent possibility of the softening of the paper and its ultimate disintegration as a result of a slow absorption of moisture through such raw edges.

A cap embodying the invention lends itself to rapid production methods, which will now be described.

Preparatory to the application of the center disk d to the cushion disk c, the latter is completely assembled in relation to the shell a. The caps, completely assembled, may be rapidly fed in relation to cutting dies g and h, and as they are brought under these dies, superimposed strips a' of paper, and a' of gutta percha tissue are fed between the die plate h and the punch g.

With the descent of the punch g, disks are simultaneously cut from the strip g' and g', such disks being pressed by the punch upon the disk f with their centers concentric with each other and with said disk f. The punch g is maintained at an elevated temperature required to melt the gutta-percha of the strip g' and make it tacky, so that substantially simultaneously with the pressing of the disks f and g against the disk f, the disks f and g will be bonded together with sufficient permanency to ensure accurate positioning of the disk g and avoid likelihood of displacement of same thereafter. It is preferable, after the disk g has thus been bonded to the disk f, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta-percha and a close adhesion of every portion of the disk g to the disk f.

For this purpose I have shown a carrier i and a heated spring pressed plunger j.

In the drawing, I have shown the punch g and the plunger j as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed.

It will be noted that by following the methods above specified, the heat necessary for the fusing of the gutta-percha is applied at the surface of the disk f, and that the time intervals are sufficiently short to avoid any substantial absorption of heat by the cushion disk f. The very thin gutta-percha tissue will melt very rapidly, and after the removal of the punch g or plunger j will solidify with great rapidity and form a substantially imperceptible stratum intermediate the discs g and f.

747

959

If it is desired to provide the cap with a superficial wax surfacing throughout the area of the cushion disk f and center disk d, a very small quantity of wax, such as paraffin or ~~paraffin~~ ceresin wax or wax compounds, may be delivered upon said disks within the shell a following the application of the disk d to the disk f, and prior to the application of heat and pressure through the medium of the carrier i and plunger j. Such heat and pressure will spread a drop of wax in a very thin film about the entire exposed face of the two disks, the raw edge of the disk d also being coated with this wax.

This thickness of the disk d will be approximately five-thousandths of an inch, while the thickness of the binding stratum g, in the ultimate product, will be relatively less than the thickness of the gutta-percha tissue, or a mere fraction of a thousandth of an inch. The wax surface stratum will also be but a mere fraction of a thousandth of an inch, and is not perceptible to the eye, although sensible to the touch.

The glazed face of the disk d does not require a wax surfacing, and, so far as I have been able to determine, most of the wax is expressed from this surface and forced from the disk to the exposed area of the cushion disk f.

If it is desired to provide the cap with a wax surface as described, it is essential that this surface be applied after the center disk d has been assembled in the cap, since the presence of wax upon the surface of the cushion disk f, prior to the application of the disk d, would prevent a proper bonding of this disk d to the cushion disk f.

The glazed surface upon the strip d' consists of

748

960

a waterproof compound consisting of resin, Chinawood oil and a driwr, and containing a plasticizer.

Express paper, sulphite paper and bleached Kraft paper are all well known commercial products.

This application is a division of my co-pending application, Serial No. 360,895, filed May 5, 1929.

It is not my invention to limit the invention to the precise details herein described, it being apparent that such may be varied without departing from the spirit and scope of the invention.

I claim:

749
961

I CLAIM:

1. The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, and applying heat sufficient to fuse said cementitious material while subjecting said disk to pressure.

2. The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said cementitious material while subjecting said disk to pressure, and thereafter subjecting said disk to a continuing heat and pressure.

3. The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said cementitious material while subjecting said disk to pressure, delivering a small quantity of wax upon said disks, and thereafter subjecting said disk to a continuing heat and pressure.

4. The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta-percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, and applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure.

5. The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta-percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure, and thereafter subjecting said disk to a continuing heat and pressure.

6. The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure, delivering a small quantity of wax upon said disks, and thereafter subjecting said disk to a continuing heat and pressure.

a/17

751

963

(1)

7. The improved method in the manufacture of bottle caps of the type comprising an interior disk of cushion material which consists in positioning upon said disk a facing comprising high gloss or express paper having its outer exposed surface coated with varnish, and adhesively uniting said facing to the disk through the medium of a stratum of gutta-percha by applying to the varnished surfacing of the facing both pressure and heat sufficient to soften the gutta-percha and cause the paper to adhere to the disk, and then permitting the gutta-percha to harden.

8. The improved method in the manufacture of bottle caps of the type comprising an interior disk facing of cushion material which consists in positioning upon said disk a facing spot of smaller diameter than the disk and comprising high gloss or express paper having its outer exposed surface coated with varnish and adhesively uniting said facing to the disk through the medium of a stratum of gutta-percha by applying to the varnished surfacing of the facing spot pressure and heat sufficient to soften the gutta percha and cause the paper to adhere to the disk, and then permitting the gutta-percha to harden.

a/18

(1)

9. The improved method in the manufacture of bottle caps of the type having an interior facing of cushion material which consists in applying to the cushion material a facing disk of high gloss or express paper having an exposed surface of varnish by feeding beneath a plunger a strip of the paper with its varnished surface facing the plunger, positioning a cap at the other side of the strip, there being a stratum of gutta-percha between the cap and paper, operating the plunger to cut a facing disk from the paper strip and to press the disk and the gutta-percha upon the cap, and simultaneously applying heat sufficient to soften the gutta-percha and cause the paper to adhere to the cap and then permitting the gutta-percha to harden.

10. The improved method in the manufacture of bottle caps of the type having an interior facing of cushion material which consists in applying to the cushion material a facing disk of high gloss or express paper in the form of a centrally disposed spot of substantially smaller diameter than the cap and having an exposed surface of varnish by feeding beneath a plunger a strip of the paper with its varnished surface facing the plunger, positioning the cap at the other side of the strip, there being a stratum of gutta percha between the cap and paper, operating the plunger to cut a facing disk from the paper strip and to press the disk and the gutta-percha upon the cap, and simultaneously applying heat sufficient to soften the gutta-percha and cause the paper to adhere to the cap and then permitting the gutta-percha to harden.

Add R'

753

965

In testimony whereof I *have hereunto set* my *hand*

Albin H. Warth

(Write first name in full.)

Oath

County CITY OF BALTIMORE } *ss.*

State of MARYLAND }

ALBIN H. WARTH,

the above-named petitioner, being duly sworn, deposes and says that he is a *citizen of the United States, and resident of* the City of Baltimore, and State of Maryland,

and that he *verily believes* himself *to be the original, first, and* sole *inventor of the improvement in*

BOTTLE CAP AND METHOD OF MANUFACTURING SAME,

described and claimed in the annexed specification; that he *do*[es] *not know and do*[es] *not believe that the same was ever known or used before* his *invention or discovery thereof; or patented or described in any printed publication in any country before* his *invention or discovery thereof or more than two years prior to this application; or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by* him *or* his *legal representatives or assigns more than twelve months prior to this application, and that no application for patent on said improvement has been filed by* him *or* his *representatives or assigns in any foreign country.*

Albin H. Warth

(Write first name in full.)

Sworn to and subscribed before me, this 30th *day of* October *1930.*

[SEAL]

Florence E. Dice

(Notary sign here) Notary Public.

MY COMMISSION EXPIRES MAY 4, 1931

Acknowledgment should be made before a Notary Public, WHO MUST AFFIX HIS SEAL. If Notary has no seal, a certificate of the Judge or Clerk of the Court showing that the Notary is qualified, must be attached. If the oath is taken before a Justice of the Peace, a certificate of the Judge or Clerk of the Court showing that such Justice is qualified, must be attached.

754

966

Ed
Petition and
a

APPLICATION DIV.
DEC - 2 30
U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP & METHOD OF MANUFACTURING SAME,

Filed Oct. 31, 1930,

Div 14

Serial No. 492,546.

December 2, 1930

U.S. PATENT OFFICE
DEC 3 - 1930
DIVISION 14

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendment in the above entitled application.

IN THE CLAIMS

Add the following:

Mc M. (II

a'

--11. A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material, of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk.

12. A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, having a glazed surface exposed inwardly of the shell, and a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk.

13. A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk, and a thin film of wax upon the exposed surface of said cushion disk and about the edge of said facing disk.

14. A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of gutta percha co-extensive in area with said facing disk, between said facing disk and said cushion disk.

15. A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, having a glazed surface exposed inwardly of the shell, and a thin stratum of gutta percha co-extensive in area with said facing disk, between said facing disk and said cushion disk.

16. A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, a thin stratum of gutta percha co-extensive in area with said facing disk, between said facing disk and said cushion disk, and a thin film of wax upon the exposed surface of said cushion disk and about the edge of said facing disk.

17. A bottle cap comprising a metallic shell, a liner of cushion material within the shell and a facing disk comprising paper having an exposed surface of varnish co-extensive with the paper, and an undersurface of gutta percha adhesively uniting the paper to the cushion material, said facing disk being of smaller diameter than and substantially centered upon the cushion material.

18. A bottle cap comprising a metallic shell, a liner of cushion material within the shell and a facing disk comprising paper having an exposed surface of ~~insoluble~~ varnish co-extensive with the paper, and an undersurface of gutta percha adhesively uniting the paper to the cushion material, ~~said facing disk being of smaller diameter than and substantially centered upon the cushion material.~~

REMARKS

It is requested that the foregoing claims be considered on the first official examination of this case. The method claims defined can only result in the article specified in the additional claims, and, therefore, it is thought that both groups of claims may be properly presented in the same case.

Respectfully,

Attorneys.

JJD:U

757

969

Div. 14 Room 102 Annex R/MC Paper No. 3

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications concerning this application should give the serial number, date of filing, and name of the applicant

MAILED MAY 19 1931

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

MAY 19, 1931

Applicant: Albin H. Warth

Cushman, Bryant & Darby
Loan & Trust Bldg.
Washington, D. C.

Ser. No. 493,546
Filed Oct. 31, 1930
For Bottle Cap and Method of Manufacturing Same.

This case has been examined and the following art is cited:

Alberti	1,234,109	July 24, 1917	113-80
Alberti	1,401,300	Dec. 27, 1921	" "
Taliaferro	1,486,937	Mar. 18, 1924	" "
Hothersall	1,540,009	June 2, 1925	" "
Marsa	1,603,786	Oct. 19, 1926	" "
Warth	1,788,260	Jan. 6, 1931	" "
Alberti	1,234,711	July 31, 1917	215-39
Warth	1,656,814	Jan. 17, 1928	" "

This application is found to contain claims to two separate and independent inventions, claims 1 to 10, inclusive, being directed to alleged improvements in a method of making bottle caps, classifiable in Class 113-80 in Division 14, and claims 11 to 18, inclusive, directed to alleged improvements in a bottle cap as an article of manufacture, classifiable in Class 215-39. Each of the above groups have attained a distinct status in the arts, recognized as such by manufacturers and inventors as shown by the above cited patents. Division is accordingly required.

Action on the merits is deferred pending compliance with the above requirement for division. The above cited patents show the state of the art after a cursory examination.

Rose

N. J. Brumbaugh

Examiner.

758

970

Elg. 4

Bs Copy

JUN -5 31

U. S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP & METHOD
OF MANUFACTURING SAME,

Filed October 31, 1930,

Serial No. 492,546.

U. S. PATENT OFFICE
JUN 5 - 1931
DIVISION 14

Div. 14.

* * *

June 4, 1931

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE CLAIMS

Claim 18

Line 3 cancel "insoluble".

Line 4 change the comma to a "period" and cancel the remainder of the claim.

Copy OK

REMARKS

The requirement for division between claims 1 to 10 inclusive and claims 11 to 18 inclusive, is respectfully presented for reconsideration. While it is true, as the Examiner suggests, a field of search must cover a number of different classes, such a distinct field has not, heretofore, been regarded as a basis for requiring division between method and article claims. For example, the Examiner's attention is called to the patent to Warth, No. 1,732,958, granted Oct. 22, 1929, copy of which is attached hereto. Claims 1 and 2 of this patent cover an

article, and claims 3 to 5 cover the method of making this article. This patent is merely an example of a number of patents which have been granted, and is selected merely because it is a recent patent and, therefore, illustrates the present practice. The Examiner will find other patents in the art claiming both method and article. Moreover, the Examiner will observe that the method and article are very closely related and probably should not be covered in separate patents. For these reasons, therefore, it is thought that the requirement for division should be withdrawn.

If, however, the Examiner is authorized to make final the requirement for division, he is requested to accord an action upon the merits of claims 11 to 18 inclusive.

The remaining claims will be retained for consideration as to the propriety of the requirement for division should an appeal be necessary.

It is requested that the Examiner bear in mind that this application presents a development which is of great practical value. Millions of caps have been manufactured in accordance with the method and article described by the assignee of this application which is the world's largest manufacture of crown caps. The development is a very substantial one, and its practical value has been amply demonstrated.

The claims presented distinguish clearly from the Warth patents 1,656,614 and 1,788,260, of record. Neither patent discloses an article of manufacture of the nature defined. Furthermore, in so far as the application claims an article, it is a continuation in part of applicant's

patent 1,788,260. The method claims are specifically distinguished from this patent.

The other references do not disclose the combination claimed or the method, and it is believed upon consideration of the merits of the claims, they will be found to be allowable.

In view of the prompt response to the action, and applicant's indicated willingness to comply with the requirement for division, if made final, it is thought that immediate action upon the merits of the claims is in order.

Respectfully,

Attorneys.

JJD:U

761

973

Div. 14 Room 102 Annex R/180 Paper No. 5

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

MAILED
JUN 13 1931

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents.

June 13, 1931

Cushman, Bryant & Darby
Loan & Trust Bldg.
Washington, D. C.

Applicant: Albin H. Warth

Ser. No. 493,546
Filed Oct. 31, 1930
For Bottle Cap and Method of Manufacturing Same.

Responsive to amendment filed June 5, 1931.

This application has been submitted to the Examiner of Classification and the following is his decision:

"Election between (I) Claims 1-10 and (II) Claims 11-18 is approved.

"The inventions are distinct and are separately classified. The article could be made by other processes."

The requirement for division is reiterated and hereby made final.

R

N. J. Brumbaugh

Examiner.

762

974

Ed. 6

JUN 18 31

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP AND METHOD OF MANUFACTURING SAME,

Filed October 31, 1930,

Serial No. 492,546.

U. S. PATENT OFFICE
JUN 19 1931
Division 14

June 17, 1931.

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

Replying to the Official Action of June 13th, the Examiner's attention is directed to the last amendment in which applicant requested an action on the merits of the article claims, 11 to 18, in the event the requirement for division is made final.

Accordingly, applicant repeats this request and asks that in view of the prompt response, an immediate action upon the merits be accorded.

The method claims are retained for purposes of appeal, in the event that an appeal is necessary.

Respectfully,

Attorneys for Applicant.

JJD:M

763

975

Div. 40 Room 264-Annex Paper No. 7

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Gor/H

July 13, 1931.

MAILED
JUL 13 1931

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

Applicant: A.H. Warth,

Cushman, Bryant & Darby,
Loan & Tr. Bldg.,
Wash., D.C.

Ser. No. 492,546,
Filed Oct. 31, 1930,
For BOTTLE CAP AND METHOD OF MANUFACTURING SAME.

Responsive to letter filed June 18, 1931.

REFERENCES ADDED:

4	Abbott	521,752	June 19, 1899	215-39
69	Alberti	1,199,026	Sept. 19, 1916	"
73	Stahl	1,215,737	Feb. 13, 1917	"
X22	Koch	1,238,156	Aug. 28, 1917	"
X21	Mc Manus	1,444,514	Feb. 6, 1923	"
X34	Lange	1,758,610	May 13, 1930	"

Claims 11, 12, 14, 15, 17 and 18 are rejected as being unpatentable over Alberti in view of Lange. It is old to provide cork inserts of bottle caps with facing disks, as illustrated by Alberti. Applicant makes such a disk of paper having its exposed face covered with varnish, and being united to the cushion disk by means of a layer of gutta percha. This material is fully and completely disclosed in Lange. To make the facing disk of Alberti of the material of Lange would not involve invention.

Claims 13 and 16 further call for a thin film of wax on the exposed surface of the disc. It is old to coat such disks with wax as shown by the patents to Abbott and Mc Manus. Claims 13 and 16 are therefore rejected on Alberti in view of Lange and Abbott or Mc Manus.

No action is given on the method claims 1-10, inclusive, which were elected against but retained for purposes of appeal.

H.L. Smith
ACTING EXAMINER.

764

976

215-R

U. S. PATENT OFFICE

JAN 13 32

JAN 14 1932

DW 40 PAPER No 8

Applicant: A. H. Warth,

Invention: BOTTLE CAP & METHOD OF MANUFACTURING SAME,

Filed: Oct. 31, 1930.

Ser. No. 492,546.

HON. COMMISSIONER OF PATENTS,

SIR:

We hereby substitute as attorneys in the above named case, Messrs. Cushman, Bryant, Darby & Cushman, a firm composed of Arlon V. Cushman, Arthur L. Bryant, John J. Darby and William M. Cushman (Reg. No. 7196), American Security Building, Washington, D. C.

Respectfully,

Cushman Bryant & Darby

January 13, 1932

765
977

JAN 13 32
U. S. PATENT OFFICE
JAN 14 1932

mke

IN THE UNITED STATES PATENT OFFICE

DIV. 40 PAPER No. 9
C

A. H. Warth,

BOTTLE CAP & METHOD
OF MANUFACTURING SAME,

Filed Oct. 31, 1930,

Serial No. 492,548. Div. 40.

* *

January 13, 1932

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 15

✓ Line 4 after the paragraph insert the following:

--This application is a division of my co-pending application, Serial No. 360,895, filed May 5, 1929.--

REMARKS

The Examiner's attention is called to the fact that this application is a division of an earlier application, Serial No. 360,895 filed May 5, 1929, and was filed in view of a requirement of the Primary Examiner (Div. 56), calling for a separation of the claims to the cap as an article of manufacture and claims as to the line or material useful generally in caps.

No limitation by Div. 56 was made on Nov. 24 1930

Since the parent application ante-dates the Lange patent 1,758,610, an affidavit under Rule 75 is unnecessary, and the Lange patent is not available as a reference.

It is accordingly submitted that the rejection based upon Alberti, in view of Lange, should be withdrawn, and it is believed that, upon consideration of the following explanation of this invention, the claims will be found allowable.

The present application is assigned to the Crown Cork & Seal Company, Inc., which is the largest manufacturer in the world of crown caps. As the Examiner well knows, these caps are used largely for the sealing of gaseous beverages which contain acids and alkalies; for example, ginger ale and mineral water. A crown cap always includes a disk of cushion material, and this material is either natural cork or a cork composition including ground cork and a binder. It has always been a problem to protect the cushion material from the acid and alkali containing liquid. This is particularly necessary, since many beverages, such as ginger ale, are stored for extended periods running from six months to a year before they are consumed. The contents of these beverages attack the cork, cause the same to deteriorate, and result in imparting an objectionable taste to the beverage and frequently discolor the latter. About 1918, the industry turned to the application of a metal foil center spot. This spot was applied to the cushion disk and was used for many years, particularly in crown caps employed for sealing beer and mineral water. But foil does not resist the attacks of alkalies or of many acids, and never proved satisfactory.

After an extended period of test, running over many years, the applicant, who has for fifteen years been chief chemist of the Crown Cork & Seal Company, Inc., developed the cap of the present invention.

When first introduced to the market, it was not favorably received, since it was not believed that a paper spot cap would

767
979

be unsatisfactory. The trade knew of previous tests of paper faced caps carried on by the applicant and which were unsatisfactory.

It was only over determined resistance, particularly by the bottlers of ginger ale, that the present cap was established as a standard commodity. Over one hundred million caps made in accordance with the disclosure of this application have been used. It is now the standard cap for both Canada Dry and Cliequot ginger ale, and is used exclusively by these manufacturers in place of caps previously employed.

In other words, the cap of this invention has entirely supplanted caps previously used, and has been found to overcome the objections to foil spot caps and previously tested paper faced caps.

The success of the present invention is due to the co-action or combination of the gutta percha layer with the varnished paper layer. It is not due to the paper alone, nor is it due to the gutta percha alone. But the applicant discovered that the gutta percha, in combination with the high gloss or resistant paper, such as express paper, particularly when the latter is provided with a varnished coating, produces results not obtainable with any other facing material and which are not obtainable except with an adhesive layer of the character of gutta percha. It has been found that the gutta percha is not only an adhesive, but it provides an acid resistant backing for the paper which is, per se, elastic. As a result of the elastic character of this adhesive, the paper does not tend to tear, and because of its acid and liquid resistant character even though the paper becomes permeated which to some extent is inevitable, this particular adhesive resists the action of the permeating liquid and maintains the protective action of the laminated spot.

This invention represents probably the most important con-

a/24

tribution, from a practical standpoint, which the crown cap industry has received in the last seven years.

If the Examiner desires affidavits as to the facts above explained by counsel, the same will be furnished, but it is thought that affidavits will not be required, since many of the facts explained are known to the Examiner.

While the Alberti and McManus patents disclose the use of a spot and the McManus patent mentions paper, the Examiner is requested to bear in mind that while these references may disclose the broad or general idea, the use of the paper spot was not found practicable prior to this invention, and a cap of this character did not come into use until the applicant made the present invention. In other words, it was applicant's present disclosure which constituted the last and necessary step to make the invention commercially useful, and it is on that step that invention is predicated. Such a contribution to the art fully responds to the tests of invention which have been generally applied, and answers particularly the requirements laid down by the Circuit Court of Appeals for the Second Circuit in International Cork Co., v. New Process Cork Co., 6 F. (2d) 420. In that case, the court considered the Alberti patent upon the use of a heat coagulating adhesive. The use of such an adhesive was broadly old, but it had never been applied for the particular purpose and in the particular relation claimed. The court speaking through Judge Manton said (at 423):

> "The great volume of work and experimentation that was indulged in by men who were interested in this art, all laboring to meet this necessity, indicates the importance of the new idea which has resulted in the patents in suit. To the art it seems a forward step, and has succeeded in bringing about economy in manufacture, speed in production, and a cheaper product - cheaper because of the ability to manufacture faster. The

> outstanding fact is that in all this experimentation of trained men, with some knowledge of egg or blood albumen, no one thought of its use as Alberti made use of it in the patents in suit. It is more than a mere substitution for a new use. Such a substitution, if it was one, was not evident to these experienced men."

This language applies very forcefully to the present case. Although McManus and Alberti disclose the use of paper spots and refer to the employment of paper, neither patent suggests the combination of the paper and the adhesive backing in the form of an insoluble infusible cementitious material. Nor do they suggest the combination of the varnished paper with an adhesive which more specifically is defined as gutta percha (claims 14, 15, 16, 17 and 18). This combination is not only new, but it produces novel results. The gutta percha constitutes a double barrier which is not provided by any other adhesive. Together with the paper, it provides an elastic or resilient facing which avoids liability of tearing of the paper under the high pressures to which the spot is subjected. Moreover, because of its resistance to acids, the gutta percha backs up the high gloss and inherently resistant paper, and constitutes a secondary line or plane of protection for the cushion material. In conclusion, it is submitted that since the references do not disclose the combination defined and since this combination has supplanted devices of the character shown in the references and constitutes the last and final step which made practical the vague suggestions of the prior art, it is clearly entitled to the protection of the character provided by the claims of record.

Respectfully,

[signature]
Attorneys.

JJD:U

7?0

982

DFD:ps

Div. 62 Room 7525

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 10

All communications relating this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application.

June 21, 1932

Thomas E. Robertson
Commissioner of Patents.

Applicant: Albin H. Warth

Cushman, Bryant, et al,
American Security Bldg.,
City.

Ser. No. 492546
Filed Oct. 31, 1930
For Bottle cap and method of manufacturing same

MAILED
JUN 21 1932

Responsive to amendment filed Jan. 13, 1932.

Added reference:

McManus	1,339,066	May 4, 1920	225-39 (848
Smith et al	983,319	Feb. 7, 1911	215-39 (x-12)
Weissenthanner	24,946	Jan.15, 1914	215-39 Br. 1 sht (x-12)

Claim 11 is rejected on the McManus 1,339,066, patent by which it is fully met.

Claim 12 is rejected as being unpatentable over the McManus 1,339,066, patent. No invention can be predicated on the use of a high gloss paper since the use of such paper is of common experience in the art.

Claims 13 and 16 are rejected on the McManus 1339066 patent in view of the patent to Weissenthanner. To wax the exposed surface of McManus' spot and cushion and to use gutta-percha as an adhesive would not amount to invention since Weissenthanner shows an organization that could be applied to McManus' device by one skilled in the art.

Claims 14 and 15 are rejected on the McManus 1339066 patent in view of the patent to Weissenthanner. No invention can be seen in substituting gutta-percha for the adhesive used by McManus. The use of glazed paper, recited in Claim 15 gives no patentability to the claim for the reason pointed out above.

Claims 17 and 18 are rejected on the Smith et al patent in view of the patent to Weissenthanner. No invention resides in the substitution of gutta-percha for the adhesive used by Smith.

H.W. Cochran
Examiner.

D.F.D.

771

983

Fig. 1.

PAPER No. 11
AMENDMENT
DEC 21 32
PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP & METHOD OF MANUFACTURING SAME,

Filed October 31, 1930,

Serial No. 492,546. Div. 62.

* *

December 21, 1932

U. S. PATENT OFFICE
DEC 22 1932
DIVISION 62

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

In response to the Official action of June 21, 1932, kindly amend the above entitled application as follows:

IN THE SPECIFICATION

Page 2

Line 11 before "disk" insert --center--.

Page 4

Line 2 before "insoluble" insert --water--.

Line 7 after the period insert the following: A medium which is itself elastic or resilient, such as gutta percha, is preferred, since the same will provide an elastic cushion for the fibrous disk and thereby minimize the danger of rupturing the latter.

Page 5

Line 21 cancel "of" and substitute --, such as a relatively hard, high-gloss or water-finish paper provided with a coating of resistant varnish, said disk being of--.

Line 23 cancel "an" and insert --a water--.

Same line (23) after "material" insert --, such as gutta percha--.

BLANK

PAGE

BLANK

PAGE

Page 8

Line 9 after "tin" and before the comma insert --or aluminum--.

Line 20 after the paragraph insert the following:

Aside from the expense of caps provided with foil spots, their use has been extremely limited, due to the fact that foil is not sufficiently resistant to acids and alkalies.

I am aware that it has heretofore been proposed to provide a cap with a center spot of paper, and that this is broadly covered in the United States patent to McManus, No. 1,339,066, granted May 4, 1920. The present invention constitutes an improvement upon the subject matter of said patent.

The use of center spots of paper on a commercial scale has not heretofore been economically practicable for several reasons. First, paper has a tendency to absorb liquids and gases and to impart a taste to and discolor many beverages. Moreover, upon absorption of moisture, the paper tends to rupture and expose the cushion material which it overlies. Again, the difficulty of applying a center spot of paper to the cushion disk presents problems altogether different from the use of a facing disk coextensive with the cushion disk, as for example the facing disclosed in my patent No. 1,656,614, granted June 17, 1928. A facing which completely covers the cushion disk may be readily united adhesively to the sheet or blank from which the cushion disk is stamped, or in other words, the facing sheet and cushion sheet are united adhesively, and the laminated disks punched therefrom. But in applying a formed center spot, as distinguished from a sheet, due to the fact that it is necessary to absorb the moisture in the adhesive, and as heretofore explained, during the period of moisture evaporation the spot tends to become displaced. This has presented a problem in large scale production, which manufacturers have not heretofore overcome.

Furthermore, due to the moisture and gas absorbent properties of paper, the exposed edge of the paper spot is of an area which cannot be protected by a facing, such as foil or varnish, since the spot is punched from sheets. This objection I have overcome by using a combination consisting of paper of the character described and a liquid and gas resistant fusible adhesive.

I have found that by using a paper of the character herein described, namely, a tough paper having a hard or high-gloss finish, for example, such as is termed a water-finish, the same will not fracture, has an inherent resistance to liquids and gases and serves as an excellent carrier for an exposed or outer facing of varnish and for a backing layer of water-insoluble, heat-fusible and acid and gas-resistant adhesive. I prefer an adhesive having these characteristics and which is also elastic so as to provide an elastic or cushion backing for the varnish layer and the rupturable paper layer.

D²

Extensive commercial use of this new cap has established that it is resistant to acids and alkalies and, therefore, useful in connection with liquids with which a foil spot cannot be employed, and that it is at the same time substantially less expensive than a foil spot cap. Moreover, it does not present the mechanical difficulties which are present in applying a foil center spot. The hard, tough paper serves as an excellent carrier for the varnish film as well as for the gutta percha and insures coextensive varnish and gutta percha films. The gutta percha serves not only as a medium for uniting the paper and varnish films to the cushion layer, but constitutes an acid and gas-resistant, water-insoluble, backing layer, thereby preventing moisture, acids or gases which penetrate the varnish film or paper from ~~attacking~~ the cushion layer. Moreover, the use of a hard paper having a water-finish or high-gloss permits the use

D.K.D.

of even films of varnish and gutta percha, since the paper does not absorb either the fused gutta percha or the varnish to any appreciable extent. Consequently, it is unnecessary to employ more varnish or thicker gutta percha than is required to cover completely the surfaces of the paper.--.

Line 24 cancel "water-leaf finish" and substitute --water-finish, i. e., high-gloss finish,--.

Page 13

Line 8 after "paper" (first occurrence" and before the comma insert --which has a high-gloss or water-finish--.

IN THE CLAIMS

Cancel the claims and substitute:

~~1.~~ A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid-resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

~~2.~~ A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

3
~~21.~~ A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

4
~~22.~~ A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high-gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

93

5
~~23.~~ A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of express paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

6
~~24.~~ A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of water-finish bleached kraft paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks. ††

REMARKS

This application, as amended, is presented for consideration, and in addition to the patents of record, applicant's attorneys desire to place of record the following patents:

	1,656,614,	Warth,	Jan.	27, 1928,
	1,339,066,	McManus,	May	4, 1920,
	603,108,	Lindemeyr,	April	26, 1898,
French	463,971,	Montaner & Co.	April	9, 1907,
French	415,794,	American Cord & Seal Co.,	of	1914,
French	413,841,	Premier Bottle Seal Co. Ltd.	of	1910,
British	26,297,	MacCormick et al.,	of	1910,
British	16,075,	Demuth	of	1909,
			of	1914.

In order that the Examiner may have before him a complete statement by one who has been actually engaged in the development of the art, we are filing herewith the applicant's affidavit, supported by another affidavit having to do with the facts of commercial acceptance of the invention which are referred to in the Warth affidavit.

Applicant has been engaged in development work in the cap art since 1915, and there is probably no one in the United States, or in fact in any country, who has devoted more time to the technical development in connection with the cap industry. It is believed that, in view of the affidavits, little or no comment is required by counsel upon the prior art. Notwithstanding the general reference in a number of prior patents, including the patent to McManus (1,339,066), to the use of a spot and the vague and general disclosures in the numerous foreign patents, the fact remains that no one contributed the final steps necessary to produce a paper spot cap acceptable to the trade and which could be manufactured on a commercial scale economically, until the applicant devoted his energies to thie work. And when all is said and done, it is impossible to escape the proposition that even the applicant, although experienced for over ten (10) years in this particular art when he began development work, and

with all the resources and technical assistance of the Crown Cork & Seal Co. available, succeeded in producing the completed article and establishing it on a commercial basis only after a period of three (3) years intensive work. The results of this work speak for themselves. The inadequacy of the aluminum and tin foil center spot caps had been recognized for years. Tin foil spot caps could only be used with waters and alcoholic liquors. They could not be employed to cap materials containing acids or alkalies and salts in more than very dilute solutions. Aluminum spot caps were unfitted for acidulated drinks or alkali and salt containing liquids. The result was that for years users of crown caps had been employing for the capping of acidulated liquids, such as vinegar, cider, ginger ales, vegetable juices and fruit juices, either (a) the very expensive crowns containing natural cork disks, or (b) the somewhat less expensive but more unsatisfactory crowns containing composition disks, i. e., granulated cork and a binder.

The fact that the large users of the composition cork disks turned immediately to the crown of the present invention, although from 20 to 25% more expensive than the composition cork disk, is conclusive evidence that applicant's contribution to the art is indeed an important one. Among manufacturers who paid more for this article and in whose business the invention supplanted the crown containing the composition cork disk, are the Hoffman Beverage Company, of Newark, New Jersey, which has used over 50,000 gross of paper spot crowns per year since 1928, The Moxie Company of America, and the May Bottling Company of Baltimore. Over a score of former users of the cheaper composition cork crown, without a facing, could be mentioned all of whom have turned to exclusive use of the paper spot cap described in this application.

Among the large distributors in the United States in whose business this invention has supplanted the natural cork crown which was from 20 to 25% more expensive to both the bottler and the manufacturer, can be mentioned the Clicquot Club Company and the Canada Dry Ginger Ale Company. Both of these companies have used the cap of this invention almost exclusively since 1929.

And the outstanding fact is that, in every instance, the crown was adopted by these companies practically without solicitation and without advertising or sales pressure of any kind. Each company was simply submitted samples of the invention and permitted to test the same over a period of from four (4) to six (6) months. The result was that the invention was adopted by these companies of their own volition as a contribution to the art superior to anything previously available. And in many instances, e. g., Hoffman and Moxie, the article was purchased at a price substantially higher than the price paid for the crowns previously used.

The fact that applicant's invention has made possible a saving of from 20 to 25% in the cost of manufacturing caps suitable for the bottling of high grade ginger ales, such as Clicquot and Canada Dry, is, of itself, strong evidence of invention, particularly in view of the further fact that the manufacturers have quickly adopted the product. But this is not all. Not only may the product be manufactured at a substantial saving in cost, but it is far superior to the more expensive natural cork disk. It does not impart taste to beverages, such as ginger ale, and, therefore, avoids the loss of large volumes of bottled product as frequently occured when crown caps with natural cork disks were used. Consequently, manufacturers were willing to pay a premium of from 20 to 25% for the paper spot cap produced by applicant to supplant the composition cork crown.

These are facts which are fully set forth in the accompanying affidavit, and need no discussion by counsel.

PRIOR ART

Of the prior patents of record, it is thought that none is more pertinent than the patent to McManus (1,339,066). The patentee, McManus, is the President of the Crown Cork & Seal Company, Inc., assignee of the present application. Although his patent discloses broadly the use of a center spot of paper and mentions the paper disc f as one "made of a hard parchment paper, or of any other paper so treated as to make it non-absorbent", the affidavit of the applicant shows that, notwithstanding this disclosure, there remained a final contribution to be made to this art in order that paper spot caps for the sealing of many beverages or materials with which metal foil spots could not be used remained to be developed. After a period of experimental work extending over several years, applicant accomplished this result and gave the world the product for which the groundwork had been laid by McManus. But the final steps and those which made the product a commercially useful and successful one were those of the applicant.

Admittedly, applicant's invention is an improvement upon the basic development of McManus; but that does not negative invention. The cases are numerous where an inventor utilizing the broad ideas disclosed by an earlier worker in the art has made the device more successful and established the same on a firm commercial basis.

> "Devices and publications leading up to, but not fully accomplishing, a desired end, do not anticipate an invention which for the first time effectively meets all requirements and successfully accomplishes such end". Truax v. George F. Childs Adjustable Parlor Chair Co., 152 F. 709 (Ill.).

Furthermore, it is true that the materials of applicant's product are old, per se, but it is undeniable that applicant, by a selection of old elements, has produced a new combination and has accomplished results which heretofore had not been accomplished. The established commercial success of this invention which has been adopted by practically all leading manufacturers in place of both more expensive and less satisfactory articles theretofore available and in place of less expensive and less satisfactory articles, establishes the invention as well entitled to the liberal treatment held proper by the Supreme Court in Eibel Process Company v. Minn. and Ontario Paper Co., in which Chief Justice Taft, speaking for the Court said:

> "The fact that in a decade of an eager quest for higher speeds this important chain of circumstances had escaped observation, the fact that no one had applied a remedy for the consequent trouble until Eibel, and the final fact that when he made known his discovery, all adopted his remedy, leave no doubt in our minds that what he saw and did was not obvious, and did involve discovery and invention."

When all is said and done, the following facts remain as undisputed.

1. In the face of the disclosure in the prior art no one had provided a cap which would overcome the defects of the expensive natural cork crown disk which alone was useful, although feebly so, in connection with the bottling of acidulated liquids or the defects of the less satisfactory and somewhat less expensive cork composition disks.

2. The industry had for years prior to this invention recognized the limited field of usefulness and the almost prohibitive expense of the metal foil "center spot" caps.

3. Although applicant had before him the disclosures of the prior art, the development of this invention required a long period of experimental work.

4. There is no reference which discloses the combination of elements defined in the claims, and no reference discloses a cap which could be commercially used either in place of or in competition with the cap of applicant's invention.

> 5. This invention, when offered to the trade by applicant's assignee, the Crown Cork & Seal Company, was immediately adopted, and it supplanted caps previously used for the same purposes. In this field, it was universally found more satisfactory than the more expensive natural cork caps and it was universally adopted as more satisfactory than the less expensive composition cork crowns previously used.

Under these circumstances, we submit that to this case very aptly applies the language of the Supreme Court in Diamond Rubber Company v. Consolidated Rubber Tire Co., 220 U. S. 428. In that case the Court said:

> "Knowledge after the event is always easy, and problems once solved present no difficulties, indeed, may be represented as never having had any, and expert witnesses may be brought forward to show that the new thing which seemed to have eluded the search of the world was always ready at hand and easy to be seen by a merely skillful attention. But the law has other tests of the invention than subtle conjectures of what might have been seen, and yet was not. It regards a change as evidence of novelty, the acceptance and utility of change as a further evidence, even as demonstration".

The fact that this invention has supplanted the prior art devices makes particularly pertinent the statement of the Court of Appeals in in re Thomson C. D. 1906, p. 566:

> "The testimony going to show the practical success of the applicant's combination, the truth of which is substantially conceded, is entitled to material weight. Owing to the very serious difficulties, which appear to have been successfully overcome by the applicant, other electrical train-lighting systems have not gone into general use. The demand for an improved system has been an urgent one for years, and yet no other inventor, or electrical expert, with all the knowledge afforded by prior paterts and constructions, has succeeded in devising a system answering this demand. It may be laid down as a general rule, though perhaps not an invariable one, that, if a new combination and arrangement of known elements produced a new and beneficial result never attained before, it is evidence of an invention."

As explained recently during an interview with the Examiner, this amendment is filed in the present case so that applicant's

patent may issue upon subject matter clearly distinct from the subject matter involved in interference. The claims of this application are definitely limited to a cap of the center spot type, whereas the subject matter of the interference and of the Lange patent, with which the parent application (Ser. No. 360,695) is involved, has to do with broadly a liner for a cap consisting of a multiplicity of layers. It is believed that the Examiner is quite clearly of the opinion, as are applicant's attorneys, that the subject matter in interference (60,931) and the subject matter of the new claims, are distinct and patentably different. Certainly the claims distinguish from the subject matter of the Lange patent 1,779,884, granted Oct. 28, 1930, for the same reasons they distinguish from the prior art of record. Moreover, none of the claims is readable upon the Lange patent. Lange does not disclose the use of a high-gloss paper or express paper. He does not disclose the combination of such paper and a gutta percha adhesive layer. He does not recognize the adaptability of this combination for use as a center spot in a cap of the crown type, or in any type of cap. The only basis for interference between the Lange patent and the parent case, as held by the Board of Appeals (Interference 60,931), is claim 2, which is directed to a laminated material having an alcohol resistant varnish film. Very evidently, the subject matter presented is divisible from the subject matter in interference, and there is no reason why applicant should not be given a patent upon the specific subject matter defined in the new claims. The divisibility of the subject matter of the new claims from the subject matter of the claim (2) of the Lange patent, is evident from the fact that the Patent Office, in applicant's parent case, itself required division between claims to a cap and claims to a laminated material. The subject mat-

783

995

ter is embodied in different Patent Office classifications and has repeatedly been recognized as patentably distinct for the purpose of division or separate applications. At any rate, it is clear that the Lange patent is not a reference against this application which has a much earlier filing date; the parent application, of which this is a division, was filed May 5, 1929, whereas the application for the Lange patent was not filed until February 3, 1930.

Respectfully,

Attorneys.

JJD:D

784

996

Affidavit
#
12

APPLICATION INC
DEC 22 32
U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD
OF MAKING SAME,

Filed October 31, 1930,

Serial No. 492,546.

******

CITY OF BALTIMORE)
: SS.
STATE OF MARYLAND)

Albin H. Warth, being first duly sworn, deposes and says:

I am the applicant identified in the above entitled application for patent and am of legal age.

Since approximately 1916, I have been chemical director in charge of the laboratory of the Crown Cork & Seal Co., Inc. and its predecessor Crown Cork & Seal Co. of Baltimore City.

Among my duties have been the testing of materials furnished for the manufacture of crown caps and the development of new materials for the manufacture of caps as well as the development of new types of caps and closures.

Since 1924, I have given particular attention to the development of crown caps of the center spot type. This type of cap consists of a metal shell having the usual cushion disc therein, and the cushion disc is faced by a disc of protecting material united to the cushion disc.

Prior to the development of the invention disclosed in my above entitled application, crown caps consisted of the following types:

1. Caps having a cushion disc of natural cork.

2. Caps having a cushion disc of granulated cork and a binder.

3. Center spot caps, i. e., embodying a composition or natural cork disc provided with a facing disc of smaller diameter than the cork disc.

The invention of the present application relates to the third type of cap. Before the invention of this application, center spots were formed from only two materials, namely (a) tinfoil and (b) aluminum foil. Spots of metal foil, were the only spot caps commercially available. Although the trade generally was desirous of obtaining "center spot" caps for numerous materials, the use of the tin and aluminum spots was very limited. In the first place, such caps were almost prohibitively expensive, and the handling of metal foil presented many mechanical difficulties due to its flimsy and inelastic character. Moreover, the tin spot had a very limited field for use, being not at all resistant to acids or acidulated liquids, and resistant to only very dilute alkalies and salts. The aluminum spot was also limited in its application, being non-resistant to acids, except weak inorganic acids in solutions not in excess of two-tenths of one per cent, and non-resistant to alkalies or salts in any strength, even as low as one-half of one per cent. Moreover, the aluminum spot tends to decolorize the material within the capped vessel, such as the natural pigments of fruits and vegetable juices.

As a result of the limited applicability of the metal foil center spot caps, it was necessary for bottlers and manufacturers generally to use caps of very expensive character, and which contained a cushion disc of natural cork. Caps having natural cork cushion discs before the present invention were from twenty to

twenty-five per cent more expensive than even foil center spot caps. Notwithstanding this additional expense, natural cork discs were very unsatisfactory in connection with many materials, particularly those which are highly carbonated, such as ginger ale. Yet the principal manufacturers or bottlers of high grade products did not have available for beverages, such as ginger ale, or acidulated or alkali containing liquids, any cap more satisfactory than the cap provided with a cushion disc of natural cork. Many bottlers or manufacturers of less prominent brands used for such liquids or beverages, caps having a composition cork disc, i. e. granulated cork and a binder. Such caps were useful where the beverages were used after bottling within a reasonable time, and would retain purity and clarity over relatively short periods such as up to six weeks. These composition cork caps were somewhat less expensive than the center spot caps and were obtainable at from twenty to twenty-five per cent less than the center spot caps.

Generally, therefore, there was available in the trade at the time of the invention of this application for the capping of acidulated, alkali and salt containing liquids, only the natural cork cushion disc caps or the composition cork cushion disc caps. These caps were used, although unsatisfactorily, in connection with fruit juices, vegetable juices, ginger ale and on many acidulated beverages for export purposes, although in the latter, due to the necessity for long holds, only the natural cork discs could be used.

Aside from the expensive character of the natural cork caps, the matter of defective caps due to the difficulty of obtaining sufficiently high grade cork, which became obtainable with greater difficulty as the use of crown caps increased, another very serious objection was the inability to avoid imparting of taste to many beverages. This was due to the tanic acid in the cork and

residues of the bleaching materials employed in preparing the cork. I recall one large customer of the Crown Cork & Seal Co. who in one instance had to destroy several thousand dollars worth of gingerale in Baltimore City because the natural cork discs, although the most expensive and unquestionably the best cap available at the time, imparted such an objectionable taste to the ginger ale that it could not be sold. This expense had to be borne by the Crown Cork & Seal Co. as the manufacturer of the caps. Faced with this situation, I began to develop a center spot cap which could be used in the capping of fruit juices, vegetable juices, cider, vinegar and generally in the capping of acidulated liquids or materials with which the tin and aluminum center spot cap could not be used.

Although crown caps had been manufactured with a paper facing blank before that date, as disclosed for example in my patent 1,655,614, the manufacture of a crown with a paper "center spot" presented many difficulties which the several years of manufacture of an over-all paper facing did not help to solve.

First, although paper of the center spot cap would appear to be less likely to rupture or fracture because it leaves an exposed surrounding area of the cushion material for direct engagement with the container, I found that the danger of rupture of the center was equal to, if not greater than, the danger of rupturing the over-all paper facing disc. This problem of fracture or rupture is one which I had never completely overcome, although the Crown Cork & Seal Co. had for many years manufactured for general use a crown cap having a paper facing completely covering the cushion disc.

Secondly, the center spot of paper presented a free edge of paper which was necessarily uncovered and exposed as dis-

tinguished from the protected edge of the paper facing which completely covered the cushion disc. Extended experiments showed that this exposed edge of the paper absorbed moisture and gases, thereby causing the paper under the high pressure to which it is subjected in the capping operations to rupture; and in many instances, if actual rupture did not take place, the paper became so permeated with gases and moisture as to permit the contents to attack, through the paper, the cushion disc.

Third, in addition to these problems of developing a paper spot which was substantially fracture-proof and impermeable to acids and gases, there was presented the problem of providing a paper spot which would not impart taste to liquids and beverages, particularly of a character in which any foreign taste became immediately objectionable. This is particularly true with respect to ginger ale. There was also the problem of developing, particularly for high pressure beverages or liquids, such as ginger ale, a complete or finished center spot of the proper thickness. Although as before explained, crown caps had been provided with a paper facing completely covering the cushion disc, such use over a period of several years contributed little or nothing to the problem of producing a paper center spot. Papers having a thickness of substantially, .004 had been used in this connection, but were found entirely unsatisfactory for center spots with highly carbonated or high pressure beverages for the reason that it was found the beverages quickly penetrated this paper. On the other hand, I found that papers having a thickness in excess of .007 were too inflexible and would not produce a satisfactory seal, and it was only after extensive experiments that I determined upon a critical thickness for paper spots, of .005 to .0065, particularly when such spots are intended for capping high pressure liquids.

In addition to the foregoing problems which had to do with a cap for general use, it was necessary to arrive at their solution with due consideration to the question of manufacture, since it was necessary to place an article of this nature upon the market within the range of price of caps already available. Obviously, the manufacturing problems which the article presented, had to be solved without a material increase in the manufacturing cost from the standpoint of manufacturing operations. It was found that the final determination of the character of materials to be used in the manufacture of the paper center spot cap had to take into consideration a change in the established manufacturing methods for center spot caps and to which I refer hereinafter.

Although I was aware that earlier patents had referred to the possible use of a center spot of paper, for example the patent to McManus 1,339,066, granted May 4, 1920, the fact is that there remained to be developed, in view of the problems above mentioned, a paper center spot which would overcome the objections above described and there was required, although I had available the entire laboratory and commercial resources of the largest manufacturers of crown caps in the world, a period of research extending over several years, before I was able to produce a crown cap having a center spot generally useful for the capping of materials for which the tin and aluminum center spots could not be used. The cap produced is disclosed in the above identified application. First, I found after testing dozens of papers, that only two were suitable. These two papers were characterized by (a) hardness and (b) a water-finish or high gloss finish. They were express paper, which is a water-finish paper, and bleached kraft paper having a water-finish. I found that these two papers had inherently a natural

resistance to the absorption of moisture and gases. I further found that they formed an excellent carrier for a coating of protecting or resistant varnish which I had applied to the absorbed surface of the paper.

I further found that even these papers, notwithstanding their natural resistance to liquid and moisture, and, therefore, their reduced tendency to rupture, could not be used satisfactorily with an ordinary adhesive for uniting the same to the cushion disc. Previous to my invention, various types of adhesive had been employed in the cap art, for uniting a facing or spot (metal foil) to a cushion disc. The Crown Cork & Seal Co. had used for many years a mixture of Burgundy pitch and other adhesive materials which constituted an adhesive resistant to liquid. But an adhesive merely moisture resistant was not suitable for a center spot cap. In addition to this adhesive, a large number of other adhesives have been used in the crown cap art, but I found none suitable except the one having the characteristics (a) water-insolubility, (b) heat fusibility, and (c) acid resistance. The only adhesive available at the time having these characteristics, I found to be gutta percha, or a mixture of gutta percha and other materials, making the adhesive essentially gutta percha. I discovered that this particular adhesive had another characteristic which made it of extreme value, namely its inherent elasticity which afforded an elastic cushion or backing for the paper. By employing gutta percha, I found that any moisture or gases which tended to permeate the exposed edge of the center disc of paper, notwithstanding the facing of varnish on the paper, or which permeated through the varnish facing, since no varnish is entirely impermeable, prevented the gases or liquid from attacking the cushion disc. As a consequence, the final article used, after approximately three years of experimental work, was a combination of (a) a varnish facing (b) a hard, tough paper having a high gloss or water finish, e.g. express paper or water-finished bleached kraft, and (c) an elastic,

water insoluble and acid resistant adhesive, such as gutta percha.

The final development of this spot which proved to be satisfactory in use, presented a number of problems from the standpoint of economical production on a commercial scale. As will be understood, manufacturing plants had already installed machines for the manufacture of center foil spots, and it was necessary, therefore, that I design my cap so that it might be manufactured with existing machinery. Consequently, the selection of these materials was made with concurrent tests as to the responsiveness of the materials to the machinery. For example, I found that the use of a heat fusible adhesive with a paper facing presented manufacturing difficulties, not presented in the manufacture of a foil center spot cap, due to the marked difference in the heat conductivity of the varnished paper as compared to the foil. Nevertheless, I found that by usang a gutta percha film, only of sufficient thickness to provide a complete coating for the paper, and employing paper not in excess of .007 and of the character described, it was possible by slightly increasing the heat application in the machines to apply the paper spots to the cushion discs in the same machines previously used for the manufacture of foil spot caps. This matter of manufacturing operation required a considerable period of experiment, and it was not until 1928 that the problem had been completely solved, and large scale production on a commercial basis could be instituted, although two sales in 1927, primarily for experimentation had been made. The commercial results obtained by the invention are a matter of record in the Crown Cork & Seal Co.

Briefly, they were as follows:-

In 1927, three of the largest manufacturers of ginger ale in the United States, Clicquot Club Co., Canada Dry Ginger Ale Co. and Cosman Ginger Ale Co., were using exclusively crown caps having a cushion disc of natural cork. For these caps the said companies were paying from forty to fifty per cent more than less prominent manufacturers were paying for the only other type of crown then used in connection with ginger-ale, namely, caps having a cushion disc of composition cork. Among the latter were the Hoffman Beverage Co. of Newark, New Jersey, the May Bottling Co. of Baltimore, Maryland, and the Moxie Company of America, of Boston, Massachusetts.

Within a year, or at the most two years, after this invention had been offered to the trade, the users of natural cork discs such as Canada Dry and Clicquot and Cosman, discarded the natural cork disc for the paper spot disc of the present invention and this type of cap has since been used by these companies almost exclusively.

For the new paper center spot cap, these manufacturers paid from two to three per cent less than the natural cork disc and found the center spot cap much more satisfactory. It represented, therefore, a substantial saving both to the bottler and to the manufacturer.

Not only did the former users of natural cork discs turn to the center spot cap, but the same very largely supplanted the composition cork disc, although the paper center spot cap sold to the users of the composition cork disc at a price forty to fifty per cent higher than they had been previously paying for the composition cork disc. For example, in the year 1927,

Crown Cork and Seal Co. sold exclusively to the Hoffman Beverage Co. of Newark, New Jersey, composition cork discs. In 1928, the Hoffman Beverage Co. purchased over fifty thousand gross of paper spot caps, and has continuously used these caps almost exclusively since that date, paying for the same a considerably higher price than they had previously paid for the composition cork cap. The center spot cap supplanted the composition and natural cork caps substantially throughout the ginger ale industry by 1930 and it is now the standard cap for all leading brands of ginger ale.

Furthermore, in the capping of highly carbonated beverages which are also acidulated, the paper center spot cap of this application has almost completely supplanted the plain natural cork or composition cork cap.

Whether substituted for the formerly higher price natural cork cap crown as by Clicquot Club, Canada Dry and Cosman, or for the formerly lower priced composition cork crown, as by Hoffman Beverage Co., Moxie Co. and May Bottling Co. of Baltimore, the paper center spot cap has in every instance been found to be superior to both of the previously used types of crowns.

In the introduction of the paper center spot crown, the Crown Cork and Seal Co. has done virtually no advertising; the article has sold itself. Aside from one or two formal announcements in trade papers that the Crown Cork and Seal Co. was manufacturing paper spot crowns, there has been no advertising of this article. Its adoption by the manufacturers mentioned above, and numerous others, was the result of merely submitting to each manufacturer a few sample caps with the request that they test the same. They were tested by the Clicquot Club Co. and the Canada Dry Ginger Ale Co. over a period of six months

before being adopted and were then ordered without further solicitation on the strength of the tests conducted by these Companies. The same statement applies to the adoption of this article by other large manufacturers of acidulated beverages and of other beverages with which the tin spot and aluminum spot cap could not be used.

Further deponent sayeth not.

Albin H. North

Baltimore, Maryland

December 21st, 1932

Subscribed and sworn to before me, this 21st day of December, 1932.

Notary Public.

(SEAL)

MY COMMISSION EXPIRES MAY 1, 1933

795

1007

CATION DIV
DEC 22 32
PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed October 31, 1930

Serial No. 492,546.

****

CITY OF BALTIMORE)
: SS.
STATE OF MARYLAND)

FREDERICK E. FUSTING, being first duly sworn, deposes and says:

That he is Vice-President of the Crown Cork & Seal Company, Inc., having its plant in Baltimore, Maryland, and has been an officer of said company and of its predecessor company, The Crown Cork & Seal Co., of Baltimore City, for over fifteen (15) years.

That he is familiar with the disclosure in the above entitled application which covers the so-called "paper spot" crown first marketed by the Crown Cork & Seal Company, Inc. on a commercial scale in 1928.

That for many years prior to 1925 there had been widely recognized in the crown cap industry a need for a crown cap which would be useful in the bottling of many materials with which "spot crowns" theretofore manufactured could not be employed. Prior to 1925, the only center spot caps available were provided with spots of either tin foil or aluminum foil. These caps could not be employed with acid containing materials, such as fruit juices and ginger ale. For such products it was customary for bottlers to employ crowns having a cushion disc of either (a) natural cork or (b) cork composition material.

The natural cork disc crowns were objectionable because of their very high price and the difficulty in obtaining suit-

able natural cork, particularly for capping high pressure beverages, such as ginger ales. The cork composition disc crowns were even more unsatisfactory.

Prior to 1928, aside from two experimental sales, the Crown Cork & Seal Company had not manufactured a paper spot crown, and to deponent's knowledge no other manufacturer of crown caps had manufactured a cap having a center spot of any material other than foil.

Referring, for example, to the bottlers of ginger ales, such as Canada Dry Ginger Ale and Cliequot Club, these manufacturers prior to 1928 employed crowns having therein discs of natural cork. For these crowns they paid from 26½ to 28½ cents per gross. Yet these crowns, notwithstanding their high price, were not satisfactory. In 1924 the Gosman Ginger Ale Company, of Baltimore, Maryland, met with the loss of a large quantity of bottled ginger ale, due to unsatisfactory crowns of natural cork, and this resulted in a total loss of over Six Thousand Dollars ($6,000.).

Other manufacturers of ginger ale were using crowns having a disc of cork composition and for the same were paying from 17½ to 18½ cents per gross. These crowns were also recognized as not satisfactory. But aside from the natural disc crowns which were considerably more expensive, there were no other crowns on the market even reasonably suitable.

In 1928, when the Crown Cork & Seal Company, Inc., began commercial manufacture of the "paper spot" crown of the above entitled application, over sixty-four thousand (64,000) gross of these crowns were sold. They supplanted in use during 1928 principally the previously used composition cork disc crowns. The users of the new paper spot crown in 1928 paid for the paper spot

crowns 40% more than they had previously paid for the composition cork disc crowns.

In 1929 the Crown Cork & Seal Company, Inc., shipped over one hundred thousand (100,000) gross of paper spot crowns. During that year they supplanted not only the composition cork crowns, but, to a very large extent, the natural cork disc crowns. They were sold to the former users of the natural cork disc crowns at a very slightly lower price than the natural cork disc crowns.

In 1930 the Crown Cork & Seal Company, Inc., sold over two million one hundred thousand (2,100,000) gross. In 1931 the Crown Cork & Seal Company, Inc., sold approximately two million (2,000,000) gross of paper spot crowns.

By 1931, such companies as Canada Dry, Cliequot Club Company, Gosman Ginger Ale and the Moxie Company of America, had adopted the paper spot crown almost exclusively in place of the previously used natural cork disc crowns. Other companies, such as the Stroh Products Company, The C. E. May Company and the Hoffman Beverage Company had adopted the same instead of the formerly used composition cork disc crowns and at a price approximately 40% higher.

In other words, the new product had almost completely supplanted the old of natural cork disc and composition cork disc crowns by 1931 in the business of the large bottlers of ginger ale in the United States. The product has been marketed with continued success since its introduction in 1928 and is generally recognized by the trade as far superior of any product previously available.

The increase in sale from less than one hundred thousand (100,000) gross in 1928 to over two million (2,000,000) gross in 1930 was accomplished virtually without advertising, and I can find no record of any advertising expense with reference to

the paper spot crown other than one or two simple announcements in trade journals that the company was making at this price. In practically every instance, there was no particular effort made to sell the paper spot crown. The same was merely submitted to companies such as Canada Dry and the Clicquot Club Company. After months of test, these companies adopted the new product of their own volition in preference to the crown they had previously used.

Further deponent sayeth not.

Frederick E Gustavus

Subscribed and sworn to before me this 21st day of December, 1932.

Notary Public

(SEAL)

MY COMMISSION EXPIRES MAY 8, 1933

a/45

799

1011.

Letter
13



IN THE UNITED STATES PATENT OFFICE

U. S. PATENT OFFICE
JAN 23 1933
DIVISION 62

Albin H. Warth,

BOTTLE CAPS & METHOD OF MANUFACTURING SAME,

Filed Oct. 31, 1930,

Serial No. 491,546.

Div. 62.

* * *

January 21, 1933

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

As a further reason for allowing this application at the present time, attention of the Examiner is called to the fact that the pending interference 60,878 has terminated favorably to the applicant as a result of decisions of the Examiner of Interferences and the Board of Appeals.

Respectfully,

Attorneys.

JJD:D

a/66

800
1012

JAN 23 33

IN THE UNITED STATES PATENT OFFICE

U S PATENT OFFICE

JAN 23 1933

DIVISION 62

Albin H. Warth,

BOTTLE CAP & METHOD OF MANUFACTURING SAME,

Filed October 31, 1930,

Serial No. 492,546. Div. 62.

* *

December 29, 1932

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

Supplementing the amendment filed December 21st, the following is submitted as a discussion of the propriety of allowing this application while the parent application is involved in interference (60,931) with the Lange patent 1,779,684, granted Oct. 28, 1930. The record is clear on the proposition that applicant and the Patent Office are in agreement that the subject matter of the claims presented in this case is patentably distinct from and divisible from the subject matter of the claim (2) of the Lange patent, as well as from all the claims of the Lange patent. In the parent application the Examiner required division between claims to a laminated material as such and claims to a cap. Upon allowance of this application the parent case in interference will be restricted to a laminated material as such, and claims of the nature now presented here will not be retained.

Rule 106 distinctly provides for an allowance of an application upon subject matter divisible from that involved in interference. Under that rule, this application is presented.

The subject matter is not only divisible from the claim (2) of the Lange patent involved in interference, but it is divisible from all the claimed subject matter in the Lange patent.

It is obvious from a reading of Lange's claims that his patent is definitely restricted to a laminated material having a varnish coating of a specific type. No decision in the interference involving claim 2 could have any bearing upon the patentability of the claims now presented for two reasons: First, the claim defines a specific type of varnish composition, i. e., alcohol resistant. Second, the claim is not directed to the type of adhesive to which the claims presented in this application are directed, namely, "heat fusible, acid resistant and water insoluble".

We do not overlook the fact that the Lange patent discloses an adhesive of this type. But Lange has never maintained himself, at any time, either in his claims or elsewhere, to be the inventor of the specific combination defined in the claims here presented.

As a matter of fact, the testimony which Lange took in the interference and which he has consistently refused to file, is clear on the proposition that Lange never, at any time, used gutta percha or "a heat fusible, acid resistant and water insoluble adhesive". Of course, we are unable to prove this to the Examiner, for the reason that Lange declines to file his testimony; the record in the interference shows that. We submit, therefore, that the applicant should not be penalized by delaying the grant of his patent merely because Lange declines to file his testimony in the interference as both the Commissioner and the Examiner of Interferences have required. Since Lange will not file his testimony so that the Examiner may see that it has nothing to do with the type of adhesive defined in the claims now presented, we submit that the Examiner should quite properlytake applicant's word to that effect. As a matter of fact, the Lange patent does not relate to a center spot type of cap which each of the claims defines. Nor does it relate to the combination of a hard, high-gloss paper disc with its outer surface varnished and having a backing

of "heat fusible, acid resistant and water insoluble adhesive". We submit, therefore, that the claims are clearly patentable over the disclosure in the Lange patent and the claim in interference because they define features not covered by the claim and not touched upon by the Lange testimony. To refuse to grant applicant a patent upon this subject matter divisible from the subject matter in interference, as previously held by the Patent Office, in its former requirement for division, would be to penalize the applicant because of Lange's persistent refusal to obey the orders of the Commissioner and the Examiner of Interferences to file his testimony which would at once show that the testimony does not relate to the combination claimed here, namely, (a) a center of varnished paper disc consisting of hard, high-gloss paper, e. g., express paper or water finished bleached Kraft paper, and (b) a backing of heat fusible, acid resistant and water insoluble adhesive, e. g., gutta percha, the backing and disc both being of smaller diameter than a cushion disc on which they are imposed. That subject matter is plainly divisible from what is involved in interference, and it is submitted that the application should be allowed. This is thought to be in accord with the rules in the following decisions:

Ex parte Willson, 1892 C. D. 111;
Ex parte Bullier, 1899 C. D., 155 and
Ex parte McCormick, 1904 C. D. 575.

Finally, it is submitted that the state of facts involved in this case warrants an exception to the strict rule that the entire disclosure of all applications involved in an interference should be considered as prior art. In other words, the disclosure of the Lange patent should not be accepted as prior art, for the reason that Lange has a filing date subsequent to Warth; Warth filed on May 5, 1929 (parent application) and Lange did not file until

803

1015

February 1930.

Furthermore, Lange has declined to file any testimony in the interference, and, therefore, so far as Lange is concerned, there is no possibility of his presenting evidence having to do with the use of the subject matter defined in the claims here presented, which, admittedly, is patentably distinct from the subject matter involved in interference. In his communication of Sept. 23, 1932, Lange's attorneys said that, so far as Lange is concerned, "this interference was finally terminated last April". He refers to the dissolution by the Commissioner. That being the case, Lange has definitely waived any right he might otherwise have for the Patent Office to consider his patent in its entirety, or even in part, as prior art against this divisional application. It is true that the interference has been continued and that applicant has filed a bill in equity to obtain his copy of the Lange testimony and for other purposes to enforce generally applicant's rights in the premises.

Therefore, since the subject matter defined in the claims is divisible and patentably distinct from the subject matter in interference, since Lange is a junior party by eight months, and has definitely refused to file any testimony, it is submitted that his patent should not be treated as prior art against this earlier filed application presenting claims which are not readable on the Lange disclosure.

Respectfully,

Attorneys.

JJD:U

804
1016

Div. 62 - CB.

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

Serial No. 492546

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON January twenty-six, 1933.

Albin H. Warth, Assor.

Your APPLICATION for a patent for an IMPROVEMENT in BOTTLE CAP AND METHOD OF MANUFACTURING SAME filed Oct. 31, 1930 has been examined and ALLOWED with 6 claims.

The final fee, THIRTY DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $30 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $30 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

Cushman, Bryant, Darby
& Cushman,
American Security Bldg.,
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

805

1017

FEB - 1 33
U.S. PATENT OFFICE

Paper

U.S PATENT OFFICE
FEB 2 - 1933
ISSUE DIV.

SUPPLEMENTAL OATH

Albin H. Warth,

BOTTLE CAP & METHOD OF MANUFACTURING SAME,

Filed October 31, 1930,

Serial No. 492,546,

Allowed January 26, 1933.

U.S PAT
FEB- 3 1933
DIVISION 62

CITY OF BALTIMORE)
:ss.
STATE OF MARYLAND)

Albin H. Warth, whose application for Letters Patent for Improvements in Bottle Cap & Method of Manufacturing Same, was filed October 31, 1930, Serial No. 492,546, and allowed January 26, 1933, being duly sworn, deposes and says that the subject matter of the allowed claims hereinafter appearing was part of his invention, was invented before he filed his original application, above identified for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, or in public use or on sale in this country for more than two years before the date of his application, and that the same has not been abandoned.

1. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid-resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

2. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

3. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

4. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high-gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

5. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of express paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

6. A bottle clos re comprising a metallic shell, a cushion disk facing said shell, a facing disk of water-finish bleached kraft paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

Subscribed and sworn to before me, a Notary Public, this 31st day of January, 1933.

Notary Public.

SEAL. MY COMMISSION EXPIRES MAY 1, 1933

809

1019

FEB-2-33 680789 K ~Check ~ 30.

MAIL DIVISION

FEB -2 33

U.S. PATENT OFFICE

FINAL FEE PAID TO THE COMMISSIONER OF PATENTS.

(Be careful to give correct Serial No.)

Serial No. 492,546 Div 62

INVENTOR:

Albin H. Warth

PATENT TO BE ISSUED TO

As per record

NAME OF INVENTION, AS ALLOWED:

Bottle cap and method of manufacturing same

DATE OF PAYMENT:

February 2, 1933

FEE:

Final 6 cls.

DATE OF FILING:

October 31, 1930

DATE OF CIRCULAR OF ALLOWANCE:

January 26, 1933 (This patent should issue on Feb.28.

527,012 and 414,614)

The Commissioner of Patents will please apply the accompanying fee as indicated above.

Cushman, Bryant, Darby & Cushman

Attorney.

SEND PATENT TO

Attorneys

Final fees will not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office, NOR WILL THEY BE APPLIED IN PENDING APPLICATIONS.

MAIL DIVISION
FEB - 2 33
PATENT OFFICE

Pat. 62

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth

BOTTLE CAP AND METHOD OF MANUFACTURING SAME

Filed October 31, 1930

Serial No. 492,546

HON. COMMISSIONER OF PATENTS,

Sir:

Herewith final Government fee in the above application.

It is requested that this patent issue on the same day with the following applications: Serial Nos. 527,012 and 414,614.

Respectfully,

Cushman, Darby & Cushman
Attorneys

February 2, 1933

809
1021

Feb. 28, 1933. A. H. WARTH 1,899,783

BOTTLE CAP AND METHOD OF MANUFACTURING SAME

Original Filed May 5, 1929

Fig. 1.

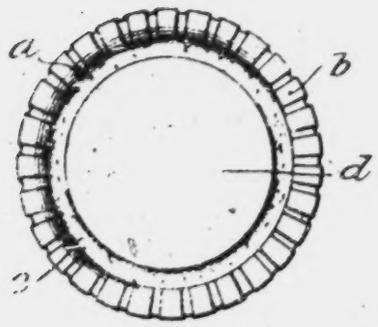


Fig. 2.

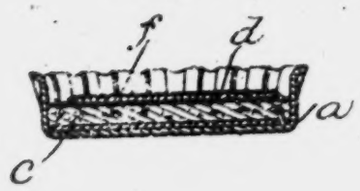
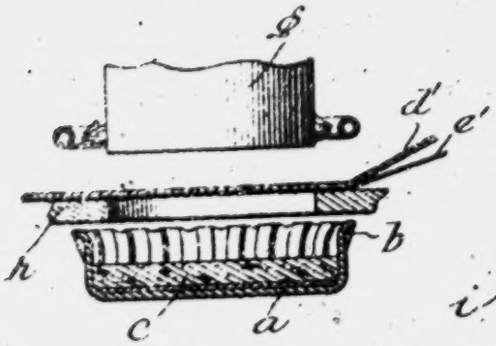


Fig. 4.

Fig. 3.



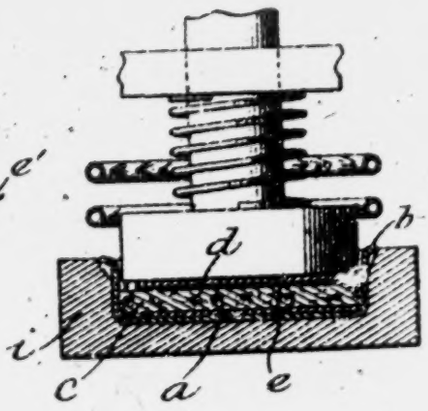
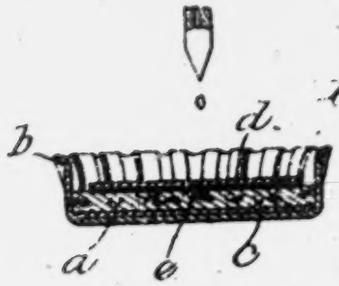
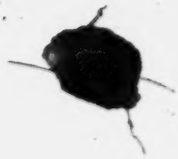


Fig. 5.





Inventor

Albin H. Warth.

by Cushman Bryant & Card

Attorneys

Patented Feb. 28, 1933

1,899,783

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, INC., OF BALTIMORE, MARYLAND, A CORPORATION OF NEW YORK

BOTTLE CAP AND METHOD OF MANUFACTURING SAME.

Original application filed May 5, 1928, Serial No. 360,895. Divided and this application filed October 31, 1930. Serial No. 492,546.

My invention relates to bottle caps and the method of making same, and more particularly to a cap consisting of a metallic shell containing a cushion disk having what is known as a protecting center disk, and to the method of applying this center disk.

Bottle caps of the type to which my invention relates have heretofore been extensively used for sealing bottles containing mineral waters and other fluids having a deleterious action upon the cushion disk within the cap, particularly when this disk is made of composition cork. Ordinarily the facing center disk has been made of tin foil cemented or otherwise attached directly to the cushion disk, or secured thereto by means of a fibrous backing having applied thereto a dry adhesive made tacky by means of a thin film of moisture applied to the cushion disk.

It has been attempted to secure the facing disk upon the cushion disk by means of a liquid cement, but this has proven impracticable because, in order to secure a satisfactory bond, it was necessary to apply the adhesive in quantity having such thickness that, upon the application of pressure to secure the desired intimate relation between the facing disk and the cushion disk, there was a tendency of the disk to slide into an eccentric position in relation to the disk. In order to permit the effective sealing of a bottle with a cap having a tin center or other protective facing, it is essential that the facing disk be accurately centered in relation to the cushion disk so as to avoid any possibility of the neck of the bottle sealing against the facing disk, since this would result in the presence of minute channels or voids at the point of contact of the facing disk with the neck of the bottle. Furthermore, at the points where the line of contact crossed the periphery of the disk, there would be exposure of a small area of the cushion disk to the contents of the bottle.

With the above conditions in mind, the object of my present invention is to provide a bottle cap having a protecting center disk secured in position by a fusible medium devoid of moisture, and thus avoid any possibility of slippage of the disk while pressing it into the necessary intimate relation with the cushion disk.

The medium used for securing the facing disk in place is of itself water insoluble and acid resisting and, being fusible at low temperatures, will form a very thin coating between the facing disk and the cork so as to preclude the possibility, in the event of imperfections in the facing disk, of the cork being attacked by the fluid contents of a bottle. A medium which is itself elastic or resilient, such as gutta percha, is preferred, since the same will provide an elastic cushion for the fibrous disk and thereby minimize the danger of rupturing the latter.

The cementing medium may be readily handled, is not affected by ordinary changes of temperature or atmospheric conditions, may be readily cut to size simultaneously with the cutting of the facing disk so as to secure a bonding stratum co-extensive with the area of the facing disk, and may be quickly fused to secure the desired bonding action between the facing disk and the cushion disk.

In addition to the foregoing characteristics, I am enabled to effectively use a facing disk of fibrous material, since the nature of the bonding medium is such as to firmly adhere to hard finished papers as well as to natural cork or composition cork.

In the commercial production of such caps, it is essential that the facing disk, during production, be cut from a strip of material, and since the edges of the disk cannot be protected by the same material used for waterproofing the surface of the disk, I have found it desirable, after the application of the facing disk, to apply, to the entire surface of the cap exposed interiorly of the cap, a very thin protecting surfacing of water repellent material. This not only serves to prevent adherence of the cork to the neck of the bottle, and to exclude atmospheric air from the exposed portions of the cushion disk before the cap has been applied to a bottle so as to prevent darkening of the cork by oxidation, but will at the same time, protect the perimeter of the center facing disk to an extent to minimize likelihood of the absorption of moisture at the edge of the disk.

Bottle caps of the general type of which my invention relates must be produced at a very low cost, and the various materials entering into same and the method of assembling and finishing are matters of great desideratum.

The herein described method of making the bottle cap of my invention relates merely to the manner of applying the center facing disk and finishing the cap, it being understood that the assembling of the metal shell and the mounting of the cushion disk therein are entirely independent operations, preparatory to the practicing of the method of my present invention.

The invention consists primarily in a bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellent, gas impervious fibrous material, such as a relatively hard, high-gloss or water-finish paper provided with a coating of resistant varnish, said disk being of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of a water insoluble, fusible, cementitious material, such as gutta percha co-extensive in area with said facing disk, between said facing disk and said cushion disk; and in such other novel characteristics as are hereinafter set forth and described, and to the method of making said caps, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawing:

Figure 1 is a bottom plan view upon an enlarged scale of a bottle cap embodying the invention.

Figure 2 is a section on the line 2—2 of Fig. 1.

Figure 3 is a vertical section illustrating the first stage of applying the center disk to the cushion disk.

Figure 4 is a similar view illustrating the final stage; and

Figure 5 is a view illustrating a stage intermediate those illustrated in Figs. 1 and 2, used when it is desired to apply a wax finish to the cushion disk.

Like letters refer to like parts throughout the several views.

In the accompanying drawing, notwithstanding that the caps themselves are shown upon an enlarged scale, the dimensions of the facing disk and the intermediate bonding stratum are of greatly increased thickness as compared with the actual materials used, even when compared with the enlarged scale of the other parts of the cap.

A bottle cap embodying the invention consists of the usual metallic shell *a* having a fluted skirt *b*. Secured within this shell is a cushion disk *c*, which may be either of natural, or of composition, cork. Composition cork is more extensively used than natural cork, and the employment of a tin or other center facing disk is particularly desirable with composition cork cushion disks, since the contents of a bottle will more readily attack the binder of the composition cork than it will natural cork.

It is essential, to secure a reliable seal, particularly with carbonated beverages, that the neck of the bottle seal directly against the cushion disk, and not against the center facing disk. This is generally understood, and I follow, in the bottle cap of my present invention, the old practice of using a center facing disk *d*, the diameter of which is relatively less than that of the cushion disk, so that when the cap is applied to a bottle, the lip of the bottle will be positioned between the facing disk and the skirt *b*, the contacting area being such as to bring the facing disk to a point at the inner edge of such contacting area.

While heretofore tin centers have been extensively used, it has been found impracticable to use paper disks for this purpose, because in order to make them impervious to gas, and non-absorbent, the finish of the paper had to be such as prevented the formation of a sufficiently good bond between the facing disk and the cushion disk to permit the practical commercial production of such caps.

To correct this condition, it has long been the practice to bond a metal foil, such as tin or aluminum, to a fibrous backing, to which latter the cement would firmly anchor. With this construction of the facing disk it was the practice to apply a dry adhesive to the fibrous backing strip and to make this adhesive tacky by the application of moisture to the cushion disk immediately prior to the coating of the facing strip and the application of the disk cut therefrom to the cushion disk.

While caps, having a facing disk of the character immediately above described, have been extensively used, their production cost, as compared with the required low cost of such caps, has been very high.

Aside from the expense of caps provided with foil spots, their use has been extremely limited, due to the fact that foil is not sufficiently resistant to acids and alkalies.

I am aware that it has heretofore been proposed to provide a cap with a center spot of paper, and that this is broadly covered in the United States patent to McManus, No. 1,339,066, granted May 4, 1920. The present invention constitutes an improvement upon the subject matter of said patent.

The use of center spots of paper on a commercial scale has not heretofore been economically practicable for several reasons. First, paper has a tendency to absorb liquids and gases and to impart a taste to and discolor many beverages. Moreover, upon absorption of moisture, the paper tends to rupture and expose the cushion material which

it overlies. Again, the difficulty of applying a center spot of paper to the cushion disk presents problems altogether different from the use of a facing disk coextensive with the cushion disk, as for example the facing disclosed in my Patent No. 1,656,614, granted June 17, 1928. A facing which completely covers the cushion disk may be readily united adhesively to the sheet or blank from which the cushion disk is stamped, or in other words, the facing sheet and cushion sheet are united adhesively, and the laminated disks punched therefrom. But in applying a formed center spot, as distinguished from a sheet, due to the fact that it is necessary to absorb the moisture in the adhesive, and as heretofore explained, during the period of moisture evaporation the spot tends to become displaced. This has presented a problem in large scale production, which manufacturers have not heretofore overcome.

Furthermore, due to the moisture and gas absorbent properties of paper, the exposed edge of the paper spot is of an area which cannot be protected by a facing, such as foil or varnish, since the spot is punched from sheets. This objection I have overcome by using a combination consisting of paper of the character described and a liquid and gas resistant fusible adhesive.

I have found that by using a paper of the character herein described, namely, a tough paper having a hard or high-gloss finish, for example, such as is termed a water-finish, the same will not fracture, has an inherent resistance to liquids and gases and serves as an excellent carrier for an exposed or outer facing of varnish and for a backing layer of water-insoluble, heat-fusible and acid and gas-resistant adhesive. I prefer an adhesive having these characteristics and which is also elastic so as to provide an elastic or cushion backing for the varnish layer and the rupturable paper layer.

Extensive commercial use of this new cap has established that it is resistant to acids and alkalies and, therefore, useful in connection with liquids with which a foil spot cannot be employed, and that it is at the same time substantially less expensive than a foil spot cap. Moreover, it does not present the mechanical difficulties which are present in applying a foil center spot. The hard, tough paper serves as an excellent carrier for the varnish film as well as for the gutta percha and insures coextensive varnish and gutta percha films. The gutta percha serves not only as a medium for uniting the paper and varnish films to the cushion layer, but constitutes an acid and gas-resistant, water-insoluble, backing layer, thereby preventing moisture, acids or gases which penetrate the varnish film or paper from attacking the cushion layer. Moreover, the use of a hard paper having a water-finish or high-gloss permits the use of even films of varnish and gutta percha, since the paper does not absorb either the fused gutta percha or the varnish to any appreciable extent. Consequently, it is unnecessary to employ more varnish or thicker gutta percha than is required to cover completely the surfaces of the paper.

In the cap of my invention, the center disk *d* is composed of a glazed hard paper, such as is generally known as express paper, sulphite paper or bleached kraft paper having a water-finish, i. e., high-gloss finish. Such papers are, of themselves, independently of the finish, fairly non-absorbent, and when required for pasting purposes, are usually provided with a dry gummed surface. The process of producing such gummed paper results in a curl in the paper.

While such hard tough papers are extremely desirable because of their inherent non-absorbent, gas impervious qualities, their use in bottle caps of the type to which my invention relates was impracticable, prior to my invention, because of the difficulties of feeding and cutting previously gummed paper and of cementing same to the cushion disk.

In the cap of my invention, however, to obviate these difficulties, I use ungummed paper of the type above referred to, and secure it to the cushion disk by means of a disk of what is known as gutta-percha tissue, which material, in strip form, may readily be handled in a machine and collated with a facing disk paper strip so as to permit a disk of the paper and a disk of the gutta-percha to be simultaneously cut by the same dies. This not only simplifies the production of the cap, but results in a bonding stratum *e* between the facing disk and the cushion disk co-extensive in area with the facing disk itself. The strip of paper from which the disk *d* is cut is indicated at *d'*, while the strip of gutta-percha forming the stratum *e* is indicated at *e'*.

Gutta-percha is particularly desirable as a bonding medium, not only because it ensures the distribution of the bonding stratum throughout the entire area of the facing disk, but because it will readily adhere, when softened to the desired extent, to the cork or composition cork, and to hard paper. Furthermore, it possesses the qualities of being non-absorbent and non-impervious to gases. The tissue itself is very thin, about a thousandth of an inch, and when softened, instantly adheres to the cork and to the paper, and is not subject to side sliding or slippage, such as liquid cements. The gutta-percha is not affected by fruit acids, minerals, CO_2 or other ingredients present in the fluid contents of bottles with which such caps are designed to be used.

The gutta-percha may be fused or melted at temperatures sufficiently low to avoid in-

jury to the other previously assembled portions of the cap, and will return to its former solid form at normal temperatures with considerable rapidity.

In the finished cap, particularly when such caps are desired for use with spring water or mineral waters, it is desirable, after the application of the center disk, to apply a very thin superficial coating *f* of water repellent material, such as paraffin, ceresin or other waxes, throughout the exposed faces of the cushion and center disk. This coating serves to prevent adherence of the cushion disk to the neck of the bottle, due to the action of the water upon the cork or upon the binder of composition cork, and also serves to more or less effectively seal the raw edges of the paper of the center disk, and prevent possibility of the softening of the paper and its ultimate disintegration as a result of a slow absorption of moisture through such raw edges.

A cap embodying the invention lends itself to rapid production methods, which will now be described.

Preparatory to the application of the center disk *d* to the cushion disk *c*, the latter is completely assembled in relation to the shell *a*. The caps, completely assembled, may be rapidly fed in relation to cutting dies *g* and *h*, and as they are brought under these dies, superimposed strips *d'* of paper, and *e'* of gutta percha tissue are fed between the die plate *h* and the punch *g*. With the descent of the punch *g*, disks are simultaneously cut from the strip *d'* and *e'*, such disks being pressed by the punch upon the disk *d* with their centers concentric with each other and with said disk *d*. The punch *g* is maintained at an elevated temperature required to melt the gutta-percha of the strip *e'* and make it tacky, so that substantially simultaneously with the pressing of the disks *d* and *e* against the disk *c*, the disks *d* and *e* will be bonded together with sufficient permanency to ensure accurate positioning of the disk *e* and avoid likelihood of displacement of same thereafter. It is preferable, after the disk *e* has thus been bonded to the disk *d*, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta-percha and a close adhesion of every portion of the disk *e* to the disk *d*.

For this purpose I have shown a carrier *i* and a heated spring pressed plunger *j*.

In the drawing, I have shown the punch *g* and the plunger *j* as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed.

It will be noted that by following the methods above specified, the heat necessary for the fusing of the gutta-percha is applied at the surface of the disk *d*, and that the time intervals are sufficiently short to avoid any substantial absorption of heat by the cushion disk *c*. The very thin gutta-percha tissue will melt very rapidly, and after the removal of the punch *g* or plunger *j* will solidify with great rapidity and form a substantially imperceptible stratum intermediate the discs *c* and *d*.

If it is desired to provide the cap with a superficial wax surfacing throughout the area of the cushion disk *c* and center disk *d*, a very small quantity of wax, such as paraffin or ceresin wax or wax compounds, may be delivered upon said disks within the shell *a* following the application of the disk *d* to the disc *c*, and prior to the application of heat and pressure through the medium of the carrier *i* and plunger *j*. Such heat and pressure will spread a drop of wax in a very thin film about the entire exposed face of the two disks, the raw edge of the disk *d* also being coated with this wax.

This thickness of the disc *d* will be approximately five-thousandths of an inch, while the thickness of the binding stratum *e*, in the ultimate product, will be relatively less than the thickness of the gutta-percha tissue, or a mere fraction of a thousandth of an inch. The wax surface stratum will also be but a mere fraction of a thousandth of an inch, and is not perceptible to the eye, although sensible to the touch.

The glazed face of the disk *d* does not require a wax surfacing, and, so far as I have been able to determine, most of the wax is expressed from this surface and forced from the disk to the exposed area of the cushion disk *c*.

If it is desired to provide the cap with a wax surface as described, it is essential that this surface be applied after the center disk *d* has been assembled in the cap, since the presence of wax upon the surface of the cushion disk *c*, prior to the application of the disk *d*, would prevent a proper bonding of this disk *d* to the cushion disk *c*.

The glazed surface upon the strip *d'* consists of a waterproof compound consisting of resin, China-wood oil and a drier, and containing a plasticizer.

Express paper which has a high-gloss or water-finish, sulphite paper and bleached kraft paper are all well known commercial products.

This application is a division of my copending application Serial No. 360,895, filed May 5, 1929.

It is not my intention to limit the invention to the precise details herein described, it being apparent that such may be varied without departing from the spirit and scope of the invention.

I claim:

1. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer

815-816

1026

surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid-resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

2. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

3. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

4. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high-gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the the facing disk between the lattter and the cushion disk and adhesively uniting the two disks.

5. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of express paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

6. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of water-finish bleached kraft paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

In testimony whereof I have hereunto set my hand.

ALBIN H. WARTH.

a/81

817

1027

113
80

10/21/30

198
155

nf. 1/14/33

1930

CONTENTS:

Application	Papers.	26.
Petition Grant A	Dec 2, 1930	27.
Rej	May 19, 1931	28.
Affidavits B.	June 5, 1931	29.
Final Rej. for Decision	June 13, 1931	30.
Letter (Election)	June 18, 1931	31.
	JUL 13 1931	32.
Rej.		
Amdt. Power of Atty -	Jan. 13 1932	33.
Amdt C -	Jan. 13-1932	34.
Rejection	JUN 21 1932	35.
Amendment D	Dec. 21/32	36.
Affidavits	Dec. 22/32	37.
Letter	Jan. 23/33	38.
Oath Dft	1.1/33	39.
		40.
		41.
		42.
		43.

4/82

818

1028

DEFENDANT'S EXHIBIT B

390

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the

Letters Patent of

John Alberti, Assignor to
The International Cork Company,

Number 1,199,026, Granted September 19, 1916,

for

Improvement in Closures.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this nineteenth day of January, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-eighth.

ATTE

Chief of Division.

Commissioner of Patents

11-6628

819

1029

DIV. 40 — 1914 — (EX'R'S BOOK) 27/67 H

NUMBER (Series of 1900),

864867 — PATENT No. 1199026

Name John Alberti

Assr to The International Cork Company of Brooklyn N.Y. a corp of New York

of New York

County of

State of New York

Invention Closures

Division of App., No. _____, filed _____, 191__

PARTS OF APPLICATION FILED.

	ORIGINAL	RENEWED
Petition	Oct 3, 1914	, 191
Affidavit	" 4, 1914	, 191
Specification	" 4, 1914	, 191
Drawing	" 4, 1914	, 191
Photo Copy	, 191	, 191
First Fee Cash	$15, Oct 3, 1914	, 191
" " Cert	, 191	, 191
Appl. filed complete	Oct-3, 1914	, 191
Examined and Passed for Issue	Feb 23, 1916	, 191
E. A. Moscock Exr. Div.	40	Exr. Div.
Notice of Allowance	Feb. 25, 1916 By Commissioner	, 191 By Commissioner
Final Fee Cash	$20 Aug. 24, 1916	, 191
" " Cert	, 191	, 191
Patented	SEP 19 1916	, 191

Attorney Sigmund Kaizo
116 Nassau St New York, NY

Associate Attorney

(No. of Claims Allowed 4) Title as Allowed Closures

(Cl. 215-10

820

1039

Petition.

84487

To the Commissioner of Patents.

Your Petitioner JOHN ALBERTI, a citizen of the United States,

and a resident of 99 Sutton Street, in the City of New York,

in the County of Kings and State of New York, whose Post Office address is 99 Sutton Street, Brooklyn, N. Y.,

pray S that Letters Patent may be granted to him for the improvements in CLOSURES,

set forth in the annexed specification; and he hereby appoint S Sigmund Herzog, (Registered 7356) of 116 Nassau Street, New York, State of New York, his attorney, with full power of substitution and revocation, to prosecute his application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

Inventor's Signature
Full Name — John Alberti

Specification.

To all whom it may concern:

Be it known that I, JOHN ALBERTI, a citizen of the United States,

and a resident of the City of New York,

in the County of Kings and State of New York,

have invented certain new and useful improvements in CLOSURES,

of which the following is a specification:

The present invention relates to closures or stoppers for bottles and other receptacles; more particularly it pertains to closures of the cap variety including those termed "crown corks"

Closures of this type usually comprise a metallic cap or crown to be locked to the neck of the bottle, etc., and a sealing disk or packing of cork or the like, that is held within the cap, for instance, by means of a suitable sticking material.

It has been found in practice that in many cases it is impracticable to permit the liquid contents of the bottle or other receptacle to come into contact with the sealing disk of cork or like material, as some liquids, such as pure water, mineral water or beverages of delicate flavors, are apt to acquire a "corky" taste. The commercial value of such liquids is thus greatly impaired. In order to obviate this and similar defects of the crown corks and like closures, it has been proposed heretofore to cover the outer, that is to say the exposed faces of the sealing disks, with thin layers of pliable or ductile metal, such as chemically pure block tin, aluminium or alloys of tin. With the use of these closures, however, serious difficulties have been found, which prevent the same from becoming commercially successful. One of these defects consists in that the layer of metal is apt to wrinkle and, thus, to prevent the formation of an airtight seal. Moreover, the metal, owing to its inherent properties, cannot as readily conform to defects in the glass, or other materials of which the bottle or receptacle is made, as cork or like substances will do. The result is that the slightest

defect in the neck of the receptacle prevents the formation of airtight seals with these closures. When it is taken into consideration that bottles, or like receptacles upon which crown corks or similar closures are used, are manufactured in great quantities and at the lowest possible cost, it will be obvious that little care can be taken in the manufacture thereof to obtain smooth and perfect-necked articles, and, inasmuch as the metal covered closures of the type above described did not fulfill, as mentioned above, in conjunction with rough and imperfect bottle necks their purpose, it will be easily understood why the commercial use of such closures could not be successful.

It is now one of the objects of the present invention to obviate the defects of the covered closures heretofore in use, that is to say to obtain a closure which forms under all circumstances an airtight seal, yet prevents completely the contamination of the bottle contents.

With this and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:-

X

Figure 1 is an elevation, partly in section, of a bottle closure constructed in accordance with the present invention; Fig. 2 is a bottom plan view thereof; and Fig. 3 is a vertical section taken through a portion of the closure on an enlarged scale.

In the drawings, a bottle closure of the crown cork type has been shown for purposes of illustration, it being, however, obvious that the invention may be applied to any and all closures of the cap variety, the forms of the metallic caps of the closures being immaterial as far as the invention is concerned, as will readily appear from the following description.

Referring now more particularly to the drawings, the numeral 10 indicates a cap, comprising a substantially cylindrical head 11 and a corrugated flange 12, which is adapted to be locked in the well known manner to the exterior of a bottle neck. This cap is made, as usual, of thin sheet iron coated with tin. In the cap is disposed a sealing disk or packing 13 of cork or like material, which is united with the cap, for instance by an interposed sticking material 14, or in any other suitable manner. To the outer, or in other words to the exposed face of the sealing disk, is attached concentrically with the latter a thin layer of tenacious or ductile metal, such as, for instance, chemically pure block tin, aluminium or an alloy of tin. This layer is made in the form of a disk, denoted by the numeral 15, its diameter being smaller than the diameter of the sealing disk 13, and being stuck to the latter by an interposed cementing medium, shown at 16. This cementing medium should, preferably,

be of the type that is insoluble in liquids after it has set and formed a union between the packing and the metallic disk; it should be insoluble at normal temperature and also at temperatures above the normal. It has been found in practice that albumen is particularly adapted for use in connection with this invention, it being inodorous, tasteless, soluble in water and thus readily preparable for use. Moreover albumen coagulates easily and is rendered insoluble at about 140° Fahrenheit, the coagulation resulting in a firm union between the packing of the cork or the like and the metallic disk, such union being brought about almost instantaneously.

In manufacturing these closures, the cementing medium is applied either to the exposed face of the sealing disk or packing of cork or the like, or it may be spread over that surface of the metallic disk that is to be in contact with the packing, or it may be carried by a layer of fibrous material that is to be interposed between the two disks, the metallic disk being then concentrically positioned in relation with and upon the packing, the entire closure being put, if necessary, under pressure and heated, whereby the cementing medium is coagulated, holding thus the metallic disk in place.

It should be noticed that in these closures an annular portion of the outer face of the packing adjacent its periphery is exposed, the remainder being covered by the metallic disk 15. The exposed portion, denoted in the drawings by the numeral 17, may vary, of course, according to the requirements, that is to say according to the thickness of the wall of the bottle neck.

It is obvious that, while herein a specified cementing medium has been described, others may just as well be used without departing from the spirit of the invention, which lies mainly in the provision of a metallic disk that covers a portion of the outer face of the packing of cork or the like of the closures, leaving an annular portion adjacent to the peripheral section of the packing exposed or uncovered.

The operation of the closure herein described is as follows: When the cap is secured to the neck of the bottle in the well known manner, the wall of the neck of the bottle is forced against the exposed annular portion of the packing, the metallic disk of the closure, being slightly larger than the inner diameter of the neck of the bottle, effectively prevents the tainting of the contents of the bottle, inasmuch as it prevents the contents from coming into contact with the packing. Inasmuch as, however, the wall of the bottle neck is pressed against the packing, the closures constructed in accordance with this invention retain the advantages of the ordinary and absolutely perfect crown corks or similar closures; that is to say they seal the bottle or other receptacle against escape of gaseous and liquid matter.

826
1036

What I claim is:-

1.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a flat disk of ductile metal cemented to the outer face of said sealing disk.

2.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a flat disk of ductile metal having a diameter that is smaller than that of said sealing disk cemented to the outer face of the latter.

3.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a flat disk of ductile metal having a diameter that is smaller than that of said sealing disk cemented to the outer face of the latter, said two disks being arranged concentrically.

4.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a disk of ductile metal exterior to said sealing disk, said two disks being stuck together by an interposed cementing medium that is coagulated by heat.

5.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a disk of ductile metal exterior to said sealing disk, said two disks being stuck together by an interposed cementing medium that is coagulated and rendered insoluble by heat.

6.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a disk of ductile metal exterior to said sealing disk, said two disks being stuck together by an interposed cementing medium consisting of a heat coagulated albuminous substance.

7.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a smaller disk of ductile metal exterior to said sealing disk, said two disks being stuck together by an interposed cementing medium that is coagulated by heat.

8.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a smaller disk of ductile metal exterior to and concentric with said sealing disk, said two disks being stuck together by an interposed cementing medium that is coagulated by heat.

9.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a smaller disk of ductile metal exterior to said sealing disk, said two disks being stuck together by an interposed cementing medium consisting of a heat coagulated albuminous substance.

10.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a disk of ductile metal exterior to and concentric with said sealing disk, said two disks being stuck together by an interposed cementing medium consisting of a heat coagulated albuminous substance.

Signed at New York, in the County of New York,
and State of New York, this 1st day of ~~Sept~~ Oct A. D. 1914.

Inventor's Signature Full Name John Alberti

E.C

WITNESSES:

Sigmund Herzog

S. Birnbaum

Oath.

State of New York,
County of New York, } ss.:

JOHN ALBERTI,

petitioner being duly sworn deposes and says that he is a citizen of the United States, and resident of the City of New York, County of Kings and State of New York, and that he verily believes himself to be the original, first, and sole inventor of the improvement in CLOSURES, described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof; or patented or described in any printed publication in any country before him invention or discovery thereof, or more than two years prior to this application; or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvement has been filed by him or his representatives or assigns in any country foreign to the United States, ~~except as follows:~~

Inventor's Full Name John Alberti

Sworn to and subscribed before me, this 1st day of ~~Sept~~ Oct, A. D. 1914.

Sarah Birnbaum

Comm. of Deeds, New York City.

#117

829

1039

Fig. 1.

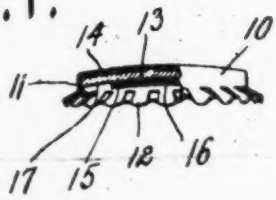


Fig. 2.

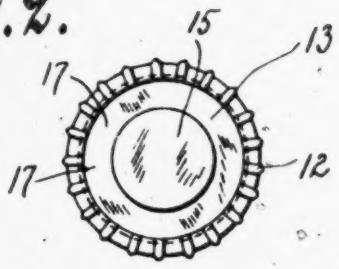
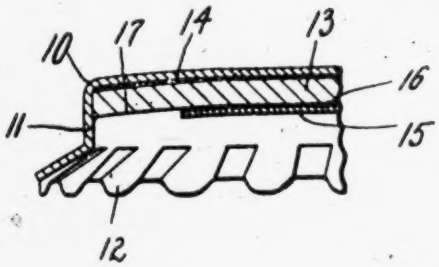


Fig. 3.



WITNESSES

F. Rane.

S. Birnbaum

INVENTOR

John Alberti

BY

Sigmund Herzog

his ATTORNEY

830
1040

Div. 40 Room 280

The Commissioner of Patents,
Washington, D. C.
and not any official by name.

M/W

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
WASHINGTON Jan. 18, 1915.

Sigmund Herzog
116 Nassau St.
New York, N. Y.

Please find below a communication from the EXAMINER in charge of the application of

John Alberti for Closures; filed Oct. 3, 1914; Serial No. 864,867.

Claims 1, 2 and 3 are rejected on

American Cork and Seal Co Fr. 415,794 of 1910 215-10
1 sheet.

To extend the disk 7 shown by American Cork and Seal Co. across the cap would not require invention

Claims 4 to 10, inclusive, are rejected on American Cork and Seal Co., cited. The use of a heat coagulated albuminous cement in lieu of the cement used by American Cork would not be invention.

Attention is called to

Plinatus 925,223 June 15, 1909 x125-80

and to applicant's allowed application which show the use of albuminous cement.

Examiner.

831

1041

SIGMUND HERZOG
Patent Attorney and Consulting Engineer
NORTON BUILDING
116 NASSAU STREET
NEW YORK

#1409.

JUL 2 1915 PATENT OFFICE

Division 40, Room 280. Paper No. 3.

IN THE UNITED STATES PATENT OFFICE.

In the matter of the application of

John Alberti,

for Letters Patent for Improvements in Closures,

Filed Oct. 3, 1914. *Ser. No.* 864,867.

HONORABLE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

Sir:

This amendment is in response to Paper No. 2, Rejection, dated Jan. 18, 1915.

Claims 1 to 3, inclusive, lines 2; before "disk", second occurence, insert flat.

The amended claims and also the others seem to be patentable over the references of record. Attention is called to the fact that each and every one of the claims calls for a disk of ductile material that is cemented to the sealing disk. This feature cannot be found in the French patent, of record, wherein a structure is disclosed in which a fairly rigid "disk" 8 is cemented to the inner face of the cap. This disk has a vertical rim 10, that is rigid enough to keep the rubber ring 7 in place.

It seems that applicant is the first one who ever attempted to attach the metallic disk to the sealing disk. The purpose of this arrangement is to prevent the wrinkling of the metallic disk to obviate the difficulties heretofore

experienced with covered sealing disks. In the French patent of record the annular portion 11, in contact with the sealing disk, is not attached to the rubber gasket; in fact, it is clearly stated that this should not be done in order to form a shoulder in sealing the bottle. In other words, in the French device a result is sought, which applicant intends to avoid.

Claims 4 to 10, inclusive, have been rejected on the French reference in view of Plinatus, of record. It is thought that, since the French device does not anticipate applicant's claims, the combination of the two devices cannot bring about his structure. The same is true of applicant's allowed application.

Insert the following new claims:

11.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a disk of ductile metal stuck throughout its entire inner surface to the outer face of said sealing disk.

12.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a disk of ductile metal having a diameter that is smaller than that of said sealing disk stuck throughout its entire inner surface to the outer face of said sealing disk.

These claims are thought to be patentable over the ~~xxxx~~ references in view of the argument made in connection with claims 1 to 10, inclusive.

Respectfully submitted,

John Alberti,

by Sigmund Stern,

his attorney.

New York, N. Y., July 7, 1915.

1043
833

Amendment July 7

SIGMUND HERZOG
Patent Attorney and Consulting Engineer
MORTON BUILDING
116 NASSAU STREET
NEW YORK

JUL 15 1915

4/13
1409

Division 40, Room 280. Paper No. 4.

IN THE UNITED STATES PATENT OFFICE.

In the matter of the application of

John Alberti,

for Letters Patent for Improvements in Closures.

Filed Oct. 3, 1914. *Ser. No.* 864,867.

HONORABLE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

Sir:

In addition to the amendment filed on or about July 7, 1915, applicant amends this case as follows:

Insert the following new claims:

13.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a thin disk stuck throughout its entire inner surface to the outer face of said sealing disk.

14.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein, and a thin disk having a diameter that is smaller than that of said sealing disk stuck throughout its entire inner surface to the outer face of said sealing disk.

It is thought that these claims are also patentable over the references cited in view of the arguments ~~cited~~ presented in the paper abovementioned.

New York, N.Y., July 13, 1915.

Respectfully submitted,
J. Alberti,
by Sigmund Herzog
his attorney.

834

1041

Div. 40 Room 280

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name.

M/W

2—960

Paper No. 5

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

WASHINGTON July 21, 1915.

U.S. PATENT OFFICE
JUL 21 1915
MAILED

Sigmund Herzog

116 Nassau St.

New York, N. Y.

Please find below a communication from the EXAMINER in charge of the application of

John Alberti for Closures; filed Oct. 3, 1914; Serial No. 864,867.

Thomas Ewing
Commissioner of Patents.

In response to amendment of July 14, 1915.

Claims 1, 2, 3, 11, 12, 13 and 14 are rejected on Maccormack et al. Br. 26297 of 1909 215-10 1 sheet.

Claims 4 to 10, inclusive, are rejected on Maccormack, cited. The use of heat coagulated albuminous cement in lieu of the adhesive substance used by Maccormack cited would not involve invention. Moreover, the use of albuminous cement is old as shown by either Plinatus, 925,223, of record, or by applicant's allowed application.

Attention is called to

Edwards 854,201 May 21, 1907 215-10.

Ejm

17

E. S. Glascock
Examiner

1045
835

SIGMUND HERZOG
Patent Attorney and Consulting Engineer
WORTON BUILDING
118 NASSAU STREET
NEW YORK

NOV 9 1915

1915

#1409

6
C

Division 40, Room 830. Paper No. 6.

IN THE UNITED STATES PATENT OFFICE.

In the matter of the application of

John Alberti,

for Letters Patent for Improvements in Closures.

Filed Oct. 3, 1914. *Ser. No.* 864,867.

HONORABLE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

Sir:

This amendment is in response to Paper No. 5, Rejection, dated July 21, 1915.

Cancel all the claims and substitute therefor:

C1

1. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said flat disk being cemented to the exposed face of said sealing disk.

2. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly largor than the inner diameter

18 -1-

of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium that is coagulated and rendered insoluble by heat.

3.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium consisting of a heat coagulated albuminous substance.

4.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium that is coagulated by heat.

5.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said two disks being stuck together by an interposed cementing medium that is coagulated by heat.

#1409

6.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said two disks being stuck together by an interposed cementing medium that is coagulated and rendered insoluble by heat.

7.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said flat disk being cemented to the exposed face of said sealing disk.

8.- A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium that is coagulated and rendered insoluble by heat.

It is thought that the claims now presented are patentable over the references of record. It is to be observed that in the Maccormack patent the sealing disk does not cover the entire head portion of the cap, nor is the thin foil of a

diameter that is substantially smaller than that of said sealing disk. It is stated in the specification of this patent that the thin foil is first pasted or cemented to a wood pulp sheet, and the two elements stamped out together. From this it would appear that the diameter of the thin foil B is substantially the same as that of the wood pulp washer A. A wood pulp washer is specifically mentioned in the specification and preferable for the reason that, as stated therein, if moisture acts on the edge of the thin foil, it causes the wood pulp washer to swell and stop the leakage. If this happens, however, the contents of the bottle are apt to be contaminated. Applicant uses a sealing disk of cork or the like now generally employed for the purpose at hand, and cements to the exposed face thereof a thin disk of thin foil or the like, the arrangement being such that the disk of cork or the like covers the entire inner face of the head of the cap, and the flat disk of ductile metal or other material has a diameter that is substantially smaller than that of the sealing disk, but slightly larger than the inner diameter of the neck of the receptacle to which the closure is to be applied. By providing a sealing disk of cork or the like which covers the entire inner face of the head portion of the cap, a closure will be obtained which forms under all circumstances an airtight closure. This feature is absent in the Maccormack device. By cementing the flat disk to the exposed face of the sealing disk and making it of a diameter that is slightly larger than the inner diameter of the neck of the receptacle to which the closure is to be applied, a contamination of the contents of the bottle is completely prevented. This feature is also absent from the Maccormack structure. Let us suppose

that the neck of the bottle shown in the Maccormack patent is not smooth and perfect. Obviously the closure will leak in such case, and not only will its contents come into contact with the metallic cap, but they will find their way through the crown cork for the simple reason that the bottle contacts with the inner face of the cap, and besides the thin foil B does not cover part of the neck, as in applicant's device.

In connection with this argument, applicant calls attention to pages 2 and 3 of his specification, which recite clearly the obstacles which he had to overcome in order to obviate the defects of the closures heretofore in use. Inasmuch as these defects are not removed in the devices shown in the several references of record, it is thought that the claims presented should be allowed over the said references.

As far as those claims are concerned which specify an albumenous substance, attention is called to the fact that in the Plinatus patent an albumenous packing material is mentioned, but nothing is stated therein to the effect or even hinted at that such packing material could be used as a cement. This reference should, therefore, be withdrawn.

It is thought that applicant's allowed application cannot be cited as a reference in view of the fact that it has not yet matured into a patent, and the Examiner is in no position to know whether it ever will result in one.

Attention has been called in the last Office action to the Edwards patent. A careful perusual of this patent reveals the fact that the device therein shown possesses all those defects which applicant has attempted to cure. More particularly its thin layer of ductile metal covers the entire face of the sealing disk and is open, therefore, to the objections mentioned in pages 1 and 2 of applicant's specification. Moreover, applicant admits that he was fully acquainted with this patent before his application was filed, and, in fact, the defects experienced with the device thereof have caused him to experiment and devise the closure forming the subject matter of this application.

Respectfully submitted,

John Alberti,

by Sigmund Bergoff

his attorney.

840 1050

Form 280
Address
the Commissioner of Patents,
Washington, D. C.,
and the following official symbol and name.

2-209

Paper No. 7
All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
WASHINGTON Nov. 15, 1915.

Sigmund Herzog
116 Nassau St.
New York, N. Y.

NOV 15 1915

The following communication from the EXAMINER in charge of the application of
John Alberti for Closures; filed Oct. 3, 1914; Serial No. 864,667.

Thomas Ewing
Commissioner of Patents.

In response to amendment of Nov. 9, 1915.

Claims 1 and 7 are rejected on

Deputh Fr. 16075 of 1913 215-10 1 sheet.

Claims 2, 3, 4, 5, 6 and 8 are rejected on Deputh, cited, in view of

La Porte 1,149,200 Aug. 10, 1915 x215-10
(filed Aug. 2, 1913)

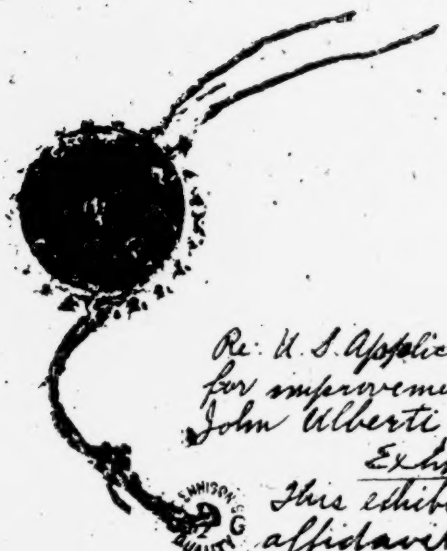
or in view of applicant's allowed application.

While applicant's allowed application has not gone to patent, it has been allowed by the Office. In the allowed application, applicant has claims for an albuminous cement. To substitute the above cement for another cement, in a structure old in the art, would not be a matter of invention.

23

Ewing

E. S. Glascock
Examiner.



Re: U.S. Application for Letters Patent for improvements in Closures, filed by John Alberti, Ser. No. 864,867.

Exhibit B.

This exhibit is identified in an affidavit of Melchor Maisse, sworn to before me this 6th day of Dec., 1915.

Sarah Birnbaum
Comm. of Deeds # 1131
N.Y. City



Re: U.S. Application for Letters Patent for improvements in Closures, filed by John Alberti, Ser. No. 864,867.

Exhibit A.

This exhibit is identified in an affidavit of John Alberti, sworn to before me this 6th day of Dec., 1915.

Sarah Birnbaum
Comm. of Deeds
N.Y. City # 1131

842

1052

SIGMUND HERZOG
Patent Attorney and Consulting Engineer
MORTON BUILDING
116 NASSAU STREET
NEW YORK

#1409

JUL 10 1915

Division 40. *Room* 280. *Paper No.* 8.

IN THE UNITED STATES PATENT OFFICE.

In the matter of the application of
John Alberti,

for Letters Patent for Improvements in Closures.

Filed Oct. 3, 1914. *Ser. No.* 864,867.

HONORABLE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

Sir:

This is in response to Paper No. 7, Rejection, dated Nov. 15, 1915.

Applicant files herewith two oaths, one of himself and the other one of Melchor Marsa, showing the completion of the invention in this country before the date of acceptance of British patent No. 16,075 of 1903. It is, therefore, respectfully requested that this reference be withdrawn and the claims allowed.

Respectfully submitted,
John Alberti
by Sigmund Herzog
his attorney.

New York, N. Y., Dec. 7, 1915.

25

843

1053

IN THE UNITED STATES PATENT OFFICE.

Div. 40, Room 280,
John Alberti,
Closures,
Filed Oct. 3, 1914,
Ser. No. 864,867.

State of New York, }
County of Kings, } SS

JOHN ALBERTI, being duly sworn, deposes and says that he is a resident of the City of New York, County of Kings and State of New York, and the applicant in the above entitled application for Letters Patent; that he made the invention set forth, claimed and disclosed in the specification and drawings, forming part of the above entitled application for Letters Patent; that he conceived the said invention, residing at that time in Brooklyn, N. Y., prior to the 9th day of July, 1914; that he completed the said invention prior to said date, towit: the 9th day of July, 1914, by constructing, making and completing a large number of closures in accordance with the said invention; that prior to the 9th day of July, 1914, he has exhibited some of said closures to several persons, among others to one, Melchor Marsa, of Brooklyn, N. Y.; that at the time of exhibiting said closures he has also explained the said invention to the said persons, including the said Marsa; and that the closures herewith filed and marked "Exhibit A" are some of the closures made and completed before the 9th day of July, 1914.

Deponent further says that he has read the accompanying affidavit of said Marsa, and that he believes the same true and correct.

Deponent further says that he does not know and does not believe that the said invention has been in public use or on sale in this country, or patented or described in a printed publication in this or any foreign country for more than two years prior to this application, and that he has never abandoned the invention.

John Alberti

Sworn and subscribed before me this 6th day of Dec., 1915.

Sarah Birnbaum

Comm. of Deeds #1131, New York City.

27

845

1055

IN THE UNITED STATES PATENT OFFICE.

Div. 40, Room 280,
John Alberti,
Closures,
Filed Oct. 3, 1914,
Ser. No. 864,867.

State of New York, }
County of Kings, } SS

MELCHOR MARSA, being duly sworn, deposes and says that he is a resident of the City of New York, County of Kings and State of New York, and engaged in the manufacture of bottle closures and other articles made wholly or partly of cork or similar substances: that he was prior to the 9th day of July, 1914 acquainted with John Alberti, the applicant in the above entitled application for Letters Patent; that the said Alberti has prior to the 9th day of July, 1914, explained to deponent the invention disclosed by the above named application and at the same time exhibited to deponent a number of bottle closures made in accordance therewith, one of said closures being hereto attached and marked "Exhibit B", said exhibit having been kept by deponent since.

Deponent further says that he has read the application papers of the above entitled application for Letters Patent, and that the closure marked "Exhibit B" is made in accordance with the invention described in said application.

Melchor Marsa

Sworn to and subscribed before me this 6th day of Dec., 1915.

28

Sarah Bernhaus
Comm. of Deeds #1131, New York City.

846

1056

40 Room 280

200

Paper No. 9

M/M

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

WASHINGTON

Dec. 16, 1915.

U. S. PATENT OFFICE
DEC 18 1915
MAILED

Sigmund Herzog

116 Nassau St.

New York, N. Y.

Please find below a communication from the EXAMINER in charge of the application of

John Alberts for Closures; filed Oct. 3, 1914; Serial No. 864,867.

Thomas Ewing

Commissioner of Patents.

In response to letter of Dec. 9, 1915.

Claims 5 and 6 are rejected on

Recht 796,356 Aug. 1, 1905 215-5

in view of Maccomack, Br., 26297, of record. While the cement shown by Maccomack cited may not be coagulated by heat such a cement is old as shown by either applicant's pending application or LaPorta 1,149,200, of record.

Claim 7 is rejected on either

Lindemeyr 603,108 Apr. 26, 1898 215-13
or Laurent Fr. 6920 of 1887 215-9 1 sheet.

To cement the disks shown by either Lindemeyr or Laurent would involve no invention.

Claim 8 is rejected on the references cited against claim . . The use of a cement coagulated by heat is shown by La Porte cited, or by applicant's pending application.

Claims 1, 2, 3 and 4 appear to be allowable.

29

E. J. Stewart

Examiner

1057
847

SIGMUND HERZOG
Patent Attorney and Consulting Engineer
MORTON BUILDING
116 NASSAU STREET
NEW YORK

JAN 29

#1409

Division 40, Room 280. Paper No. 10.

IN THE UNITED STATES PATENT OFFICE.

In the matter of the application of

John Alberti,

for Letters Patent for Improvements in Closures.

Filed Oct. 3, 1914. *Ser. No.* 864,867.

HONORABLE COMMISSIONER OF PATENTS.
WASHINGTON, D. C.

Sir:

This amendment is in response to Paper No. 9, Rejection, dated Dec. 16, 1915.

At an interview which the attorney of record had with the Examiner in charge of this application on or about the 7th inst., it was pointed out by the Examiner that it would be advisable to add a new figure to the drawings showing a bottle closure applied to a bottle in order to bring out the fact that the disk of ductile metal has a diameter that is substantially smaller than that of a sealing disk, but slightly larger than the inner diameter of the neck of the receptacle to which the closure is applied.

Applicant herewith submits a sketch and asks permission to have the same added to the drawings.

The specification is amended as follows:

Page 4, line 3, cancel "and".

Same page, line 5, substitute a semi-colon (;) for the period (.), and insert after said semi-colon (;) and Figure 4 is a similar section taken through a portion of the closure and a bottle to which it is applied.

1058
848

Page 6, line 10, after "bottle" insert the numeral 20.

Cancel claims 5 to 8, inclusive.

Respectfully submitted,

John Alberti

by Sigmund Hayes

his attorney.

New York, N. Y., Jan. 28, 1916.

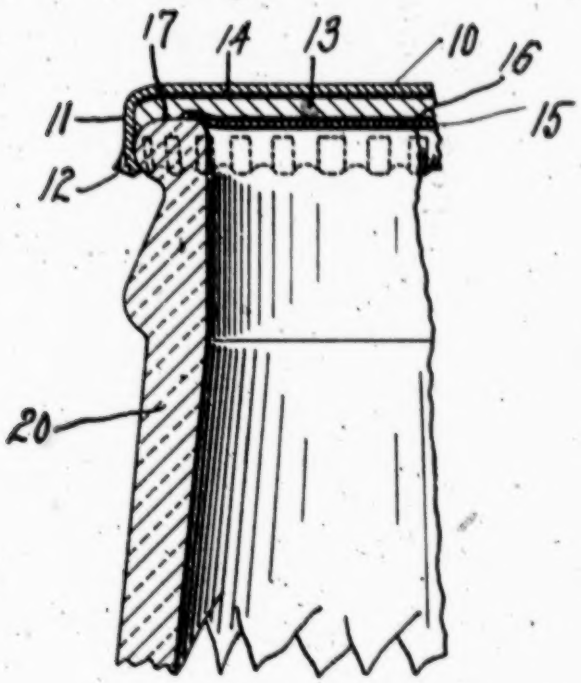
31

849
1059

Div. 40, Room 280,
John Alberti,
Closures,

Filed Oct. 3, 1914.
Ser. No. 864,867

Fig. 4.



Sigmund Herzog
Attorney

New York, N. Y.
Jan. 28, 1916.

32

850

1060

SIGMUND HERZOG
Patent Attorney and Consulting Engineer
NORTON BUILDING
116 NASSAU STREET
NEW YORK

ACCOUNTS JAN 29 1916 U.S. PATENT OFFICE

FEB 15 1916

11

Division 40, Room 280. Paper No. 11.

IN THE UNITED STATES PATENT OFFICE.

In the matter of the application of

John Alberti,

for Letters Patent for Improvements in Closures.

Filed Oct. 3, 1914. *Ser. No.* 864,867.

HONORABLE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

Sir:

The Office Draftsman is respectfully requested to add Figure 4 to the drawings, as per the hereto attached tracing. Please charge the cost of this correction to my account.

Very respectfully,

Sigmund Herzog

New York, N. Y., Jan. 28, 1916.

H. E S:en

851
1061

ADDRESS ONLY
THE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

2—181

Serial No.

AH

864,867

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

WASHINGTON Feb,,25, 1916

John Albert

Sir: Your APPLICATION for a patent for an IMPROVEMENT in Closures

filed Oct. 3, 1914, has been examined and ALLOWED.

The final fee, TWENTY DOLLARS, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent on this application will be withheld, unless renewed with an additional fee of $15, under the provisions of Section 4897, Revised Statutes.

The office delivers patents upon the day of their date, and on which their term begins to run. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will require about four weeks, and such work will not be undertaken until after payment of the necessary fee.

When you send the final fee you will also send, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If you desire to have the patent issue to ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of final fee.

After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of FIVE CENTS EACH. The money should accompany the order. Postage stamps will not be received.

Final fees will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

Respectfully,

Thomas Ewing
Commissioner of Patents.

Sigmund Herzog
116 Nassau Street
New York N. Y.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

852

1062

PATENT, DESIGN, TRADE-MARK, LABEL & COPYRIGHT PRACTICE IN THE UNITED STATES & FOREIGN COUNTRIES.

SIGMUND HERZOG,
Patent Attorney and Consulting Engineer,
116 NASSAU STREET.

TELEPHONE, 5267 BEEKMAN
CABLE ADDRESS, "SIGHERZOG-NEW YORK"

NEW YORK, Oct. 2, 1914.

OCT 6 1914

Honorable Commissioner of Patents,
Washington, D. C.

Sir:

I herewith respectfully submit in the matter of the application of John Alberti, of Brooklyn, N. Y., for Letters Patent for improvements in Closures, the following:

Petition, specification and oath,

One (1) sheet of drawings, and

First government fee of fifteen ($15) dollars per check.

Very respectfully,

Sigmund Herzog

(Enclosures)

H/B

853
1063

SIGMUND HERZOG
Patent Attorney and Consulting Engineer,
116 NASSAU STREET, NEW YORK.

AUG 21 1916 U.S. PAT. OFFICE

MEMORANDUM
OF
FEE PAID AT UNITED STATES PATENT OFFICE.

Serial No. 864,867., *190*.....

INVENTOR:

John Alberti,

PATENT TO BE ISSUED TO

International Cork Co.,

NAME OF INVENTION, AS ALLOWED:

Closures.

DATE OF PAYMENT:

August 23, 1916.

FEE:

$20.00 ISSUE FEE.

DATE OF FILING:

Oct. 3, 1914.

DATE OF CIRCULAR OF ALLOWANCE:

FEB. 25, 1916.

The Commissioner of Patents will please apply the accompanying fee as indicated above.

Sigmund Herzog
Attorney.

SEND PATENT TO

SIGMUND HERZOG
116 NASSAU STREET
NEW YORK, N. Y.

BLANK

PAGE

854

J. ALBERTI.

CLOSURE.

APPLICATION FILED OCT. 3, 1914.

1,199,026.

Patented Sept. 19, 1916

Fig. 1.

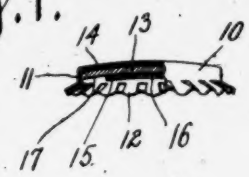


Fig. 2.

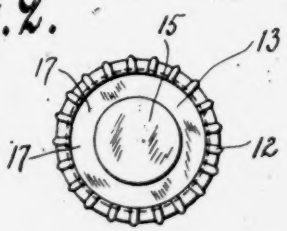


Fig. 4.

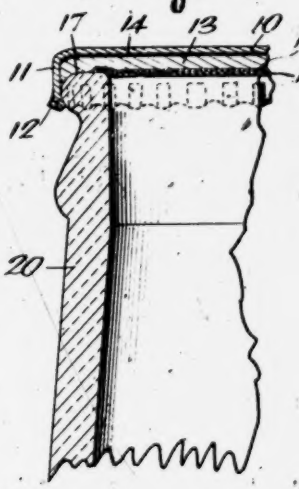
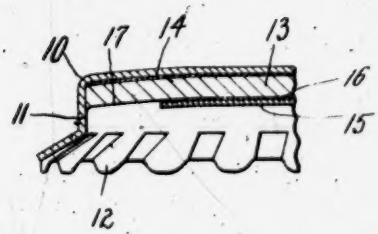


Fig. 3.



WITNESSES

F. Kane.

S. Birnbaum

INVENTOR

John Alberti

BY

Sigmund Herz

his ATTORNEY

UNITED STATES PATENT OFFICE. $55

JOHN ALBERTI, OF NEW YORK, N. Y., ASSIGNOR TO THE INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CLOSURE.

1,199,026. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed October 3, 1914. Serial No. 864,867.

To all whom it may concern:

Be it known that I, JOHN ALBERTI, a citizen of the United States, and a resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Closures, of which the following is a specification.

The present invention relates to closures or stoppers for bottles and other receptacles; more particularly it pertains to closures of the cap variety including those termed "crown" corks." Closures of this type usually comprise a metallic cap or crown to be locked to the neck of the bottle, etc., and a sealing disk or packing of cork or the like, that is held within the cap, for instance, by means of a suitable sticking material.

It has been found in practice that in many cases it is impracticable to permit the liquid contents of the bottle or other receptacle to come into contact with the sealing disk of cork or like material, as some liquids, such as pure water, mineral water or beverages of delicate flavors, are apt to acquire a "corky" taste. The commercial value of such liquids is thus greatly impaired. In order to obviate this and similar defects of the crown corks and like closures, it has been proposed heretofore to cover the outer, that is to say the exposed faces of the sealing disks, with thin layers of pliable or ductile metal, such as chemically pure block tin, aluminium or alloys of tin. With the use of these closures, however, serious difficulties have been found, which prevent the same from becoming commercially successful. One of these defects consists in that the layer of metal is apt to wrinkle and, thus, to prevent the formation of an airtight seal. Moreover, the metal, owing to its inherent properties, cannot as readily conform to defects in the glass, or other materials of which the bottle or receptacle is made, as cork or like substances will do. The result is that the slightest defect in the neck of the receptacle prevents the formation of airtight seals with these closures. When it is taken into consideration that bottles, or like receptacles upon which crown corks or similar closures are used, are manufactured in great quantities and at the lowest possible cost, it will be obvious that little care can be taken in the manufacture thereof to obtain smooth and perfect-necked articles, and, inasmuch as the metal-covered closures of the type above described did not fulfil, as mentioned above, in conjunction with rough and imperfect bottle necks their purpose, it will be easily understood why the commercial use of such closures could not be successful.

It is now one of the objects of the present invention to obviate the defects of the covered closures heretofore in use, that is to say to obtain a closure which forms under all circumstances an airtight seal, yet prevents completely the contamination of the bottle contents.

With this and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is an elevation, partly in section, of a bottle closure constructed in accordance with the present invention; Fig. 2 is a bottom plan view thereof; Fig. 3 is a vertical section taken through a portion of the closure on an enlarged scale; and Fig. 4 is a similar section taken through a portion of the closure and a bottle to which it is applied.

In the drawings, a bottle closure of the crown cork type has been shown for purposes of illustration, it being, however, obvious that the invention may be applied to any and all closures of the cap variety, the forms of the metallic caps of the closures being immaterial as far as the invention is concerned, as will readily appear from the following description.

Referring now more particularly to the drawings, the numeral 10 indicates a cap, comprising a substantially cylindrical head 11 and a corrugated flange 12, which is

adapted to be locked in the well known manner to the exterior of a bottle neck. This cap is made, as usual, of thin sheet iron coated with tin. In the cap is disposed a sealing disk or packing 13 of cork or like material, which is united with the cap, for instance by an interposed sticking material 14, or in any other suitable manner. To the outer, or in other words to the exposed face of the sealing disk, is attached concentrically with the latter a thin layer of tenacious or ductile metal, such as, for instance, chemically pure block tin, aluminium or an alloy of tin. This layer is made in the form of a disk, denoted by the numeral 15, its diameter being smaller than the diameter of the sealing disk 13, and being stuck to the latter by an interposed cementing medium, shown at 16. This cementing medium should, preferably, be of the type that is insoluble in liquids after it has set and formed a union between the packing and the metallic disk; it should be insoluble at normal temperature and also at temperatures above the normal. It has been found in practice that albumen is particularly adapted for use in connection with this invention, it being inodorous, tasteless, soluble in water and thus readily preparable for use. Moreover albumen coagulates easily and is rendered insoluble at about 140° Fahrenheit, the coagulation resulting in a firm union between the packing of the cork or the like and the metallic disk, such union being brought about almost instantaneously. In manufacturing these closures, the cementing medium is applied either to the exposed face of the sealing disk or packing of cork or the like, or it may be spread over that surface of the metallic disk that is to be in contact with the packing, or it may be carried by a layer of fibrous material that is to be interposed between the two disks, the metallic disk being then concentrically positioned in relation with and upon the packing, the entire closure being put, if necessary, under pressure and heated, whereby the cementing medium is coagulated, holding thus the metallic disk in place.

It should be noticed that in these closures an annular portion of the outer face of the packing adjacent its periphery is exposed, the remainder being covered by the metallic disk 15. The exposed portion, denoted in the drawings by the numeral 17, may vary, of course, according to the requirements, that is to say according to the thickness of the wall of the bottle neck.

It is obvious that, while herein a specified cementing medium has been described, others may just as well be used without departing from the spirit of the invention, which lies mainly in the provision of a metallic disk that covers a portion of the outer face of the packing of cork or the like of the closures, leaving an annular portion adjacent to the peripheral section of the packing exposed or uncovered.

The operation of the closure herein described is as follows: When the cap is secured to the neck of the bottle 20 in the well known manner, the wall of the neck of the bottle is forced against the exposed annular portion of the packing, the metallic disk of the closure, being slightly larger than the inner diameter of the neck of the bottle, effectively prevents the tainting of the contents of the bottle, inasmuch as it prevents the contents from coming into contact with the packing. Inasmuch as, however, the wall of the bottle neck is pressed against the packing, the closures constructed in accordance with this invention retain the advantages of the ordinary and absolutely perfect crown corks or similar closures, that is to say they seal the bottle or other receptacle against escape of gaseous and liquid matter.

What I claim is:—

1. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said flat disk being cemented to the exposed face of said sealing disk.

2. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium that is coagulated and rendered insoluble by heat.

3. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium consisting of a heat coagulated albuminous substance.

4. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of

1067

857

ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium that is congulated by heat.

Signed at New York, in the county of New York, and State of New York, this 1st day of Oct., A. D. 1914.

JOHN ALBERTI.

Witnesses:
SIGMUND HERZOG,
S. BIRNBAUM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."

1914

CONTENTS:

1.	*Application papers.*	26.	
2.	Rejection. JAN 16 1915	27.	
3.	Amendment A JUL 8 1915	28.	
4.	Amendment B JUL 21 1915	29.	
5.	Rejection. JUL 27 1915	30.	
6.	Amendment C Nov 9 1915	31.	
7.	Rejection. NOV 15 1915	32.	
8.	Petition & Brief Dec 9 1915	33.	
9.	Rejection. DEC 16 1915	34.	
10.	Amendment D. Jan 24	35.	
11.	Petition & Brief	36.	
12.		37.	
13.	4a.3	38.	
14.		39.	37
15.		40.	
16.		41.	
17.		42.	
18.		43.	
19.		44.	
20.		45.	
21.		46.	
22.		47.	
23.		48.	
24.		49.	
25.		50.	

BLANK

PAGE

[fol. 1068] DEFENDANT'S EXHIBIT E

STATE OF NEW YORK,
County of New York, ss:

John Alberti, being first duly sworn, deposes and says:

I am the John Alberti who on October 3, 1914 filed an application for United States Letters Patent Serial No. 864867 which later resulted in Patent No. 1199026 dated September 19, 1916 for a closure.

I have been requested by the Crown Cork & Seal Company, Inc., which has acquired said patent, to examine my records to determine when I first conceived and first made specimen caps corresponding to the disclosure in said patent, i. e., caps of the crown type having on the cushion disc a face of lesser diameter than the cushion disc and adhesively united to the cushion disc, whether by albumen or any other adhesive. I have found no records bearing upon said subject matter or invention and am, reasonably certain that there are none in my possession.

I have no distinct recollection of when I first conceived this invention nor any distinct recollection of when I first made the caps. I have read the affidavit which I filed in said application for patent but the same does not refresh my recollection, aside from the fact that I do recall that I first made caps of the nature referred to above and described in said patent some time in the spring of 1914. I know that it was subsequent to the completion of an addition to the plant of International Cork Company, said addition having been built on the east side of Sutton Street, Brooklyn, New [fol. 1069] York, opposite number 99 Sutton Street. This plant addition was built in the latter part of 1913 and finished, except for installation of machinery, very early in 1914. I distinctly recall that it was while we were installing assembling machines of the type known as the improved Bogdanffy machine, that I conceived the idea of utilizing a heat coagulable adhesive previously employed for sticking cushion discs in the metal shells to adhere a "center spot" facing to the cushion disc. This was in the late spring of 1914, but I have no way in which to fix the exact date. I have an impression that I conceived this idea some time in May, but so far as certainty is concerned, I can only say that it

was after the cold weather of the winter months (Jan., Feb and Mar.) in 1914.

I have examined my records and have made the foregoing statement entirely without compensation, and of course with no promise of compensation of any kind. The composition cork and the crown cork business of my company, the International Cork Company, together with the patents and machinery, including the aforesaid patent, was purchased by the New Process Cork Company, and upon receiving said request I felt morally obligated to furnish all information in my possession, to the Crown Cork & Seal Company, Inc., which has, in turn, acquired said property.

Further deponent sayeth not.

John Alberti

Witnesses: Gertrude Kupferman, Jose R. Valdes.

[fol. 1070] Before the undersigned, a notary public in and for the State of New York, on this 6th day of March, 1934, personally appeared John Alberti to me known and known to me to be the person identified in and who signed the foregoing statement, and in my presence he read the same and acknowledged that the statements contained therein are true and that he executed the aforesaid paper of his own free will and for the reasons set forth.

Jean B. Calvin, Notary Public. Kings Co. Clk's No. 132, Reg. No. 4129. N. Y. Co. Clk's No. 228, Reg. No. 4-C-122. My Commission Expires March 30, 1934. (Seal.)

(Here follow 5 photos, side folios 1071-1075)

DEFENDANT'S EXHIBIT G 860A 1071

PHONE, W'MSBURG 2387

BROOKLYN, N. Y., November 1, 1924 1924

M Ferdinand Gutmann & Co.
Brooklyn, N. Y.

TO BERTHOLD NAGY, DR.

MACHINE, TOOL AND DIE WORKS

ALL KINDS OF WELDING

BET. NOSTRAND AND MARCY AVENUES

777 MYRTLE AVENUE

Made two tin center dies	@ $50	100 00	
Extra charge for over-time 14 hours	@ 75¢	10 50	
			110 50

O K C.M.R.

REC'D
PRICE
EXTEN
ENTERED 9 12 9
PAID NOV 13 1924
CHECK No 11710

67371
United States District Court
Eastern District of New York
Exhibit G in evidence 6/12

PHONE, W'MSBURG 2387

BROOKLYN, N. Y., Nov. 20, 1924

M Ferdinand Gutmann & Co.
Brooklyn, N.Y.

TO BERTHOLD NAGY, DR.

MACHINE, TOOL AND DIE WORKS

ALL KINDS OF WELDING

BET. NOSTRAND AND MARCY AVENUES

777 MYRTLE AVENUE

Made a cutter attachment on tin center die, regrinded tin center die and made new punch 38 hours	@ $1.50	57 00	

O.K. C.M.R.

REC'D
PRICE
EXTEN
ENTERED 11 V
PAID NOV V 1924
CHECK No 67360

BLANK

PAGE

8601

DEFENDANT'S EXHIBIT H

CONFIRMATION OF SALE

BEECH-NUT FOIL CO.

Brooklyn, N. Y., Dec. 31, 1924.

To Ferdinand Gutmann & Co.,

Bush Terminal Bldg. #19, B'klyn, N. Y.

We confirm sale to you as follows: Your Order No. Letter 12-30-24 Our Order No. 6811

United States District Court
Eastern District of New York
Exhibit H in evidence
Date Dec 7/33
Deputy Clerk

Specifications	Strictly Pure Tin Foil, .0045" thick, in rolls 1-1/8" wide, core 1-9/32" in diameter.
Routing	Via Platform to the above.
Quantity	8 Small Rolls. Case Markings B 1
Price	$.6542 per lb.

Terms 2% 10 days. Delivery f. o. b. New York City.

NOTICE { Seller is not to be accountable for delays in shipment or delivery if caused by strikes, floods, fires or any contingencies beyond seller's control. This acceptance is subject to approval of seller's credit department.

Salesman J. CAGE.

Beech-Nut Foil Co.

By J. F. [illegible]

8600

1073

PURE TIN FOIL
COMPOSITION FOIL
TEA LEAD
Plain or Interwoved
in
Rolls or Sheets
Embossed or Printed
ELECTROTYPERS' FOIL

INVOICE
949
REMIT BY CHECK OR DRAFT ON NEW YORK PAYABLE TO COMPANY AT CANAJOHARIE N. Y.

WE THE UNDERSIGNED, HEREBY GUARANTEE THAT THE ARTICLES OR COMMODITIES LISTED HEREIN WERE PRODUCED OR MANUFACTURED BY US IN A FACTORY IN WHICH WITHIN 30 DAYS PRIOR TO THE REMOVAL OF SUCH PRODUCT THEREFROM NO CHILDREN UNDER THE AGE OF 16 YEARS WERE EMPLOYED OR PERMITTED TO WORK NOR CHILDREN BETWEEN THE AGES OF 16 YEARS AND 18 YEARS EMPLOYED OR PERMITTED TO WORK MORE THAN EIGHT HOURS IN ANY DAY OR MORE THAN SIX DAYS IN ANY WEEK, OR AFTER THE HOUR OF 7 O'CLOCK P. M. OR BEFORE THE HOUR OF 6 O CLOCK A. M.

BEECH-NUT FOIL CO., CANAJOHARIE, N. Y.

FEB 21ST 1925

BEECH-NUT FOIL CO.

BUILDING 19, BUSH TERMINAL
BROOKLYN, N. Y.

Received 1-30-25
Your Order 1-30-25
Our Order No. 7069
Salesman J CAGE
Terms 2% 10 days or on arrival of goods as evidenced by destination freight bill attached to remittance.
Sold to SAME

Consigned to
FERDINAND GUIMAN & CO
BUSH BUILDING #19
BROOKLYN N Y

Route via BEARER F O B N Y CITY

QUANTITY	DESCRIPTION	WEIGHT	PRICE	AMOUNT	TOTAL
	PURE TIN FOIL 1" WIDE	24 NET	7260		$ 17.61

SOLD
DATE
ENTERED 183
PAID MAR 5 1925
CHECK No. 10113

229
5
CR3

W/S

8600

1974

JRE TIN OIL
COMPOSITIC FOIL
TEA LE
Plain or Inte rved
in
Rolls or Sheets
Embossed or Printed
ELECTROTYPERS' FOIL

INVOICE
920
REMIT BY CHECK OR DRAFT ON NEW YORK PAYABLE TO COMPANY AT CANAJOHARIE, N. Y.
FEB 19 1925

WE, THE [redacted] HEREBY GUARANTEE THAT THE ARTICLES OR MERCHANDISE COVERED BY THIS INVOICE WERE MANUFACTURED BY US IN OUR FACTORY IN WHICH WITHIN 30 DAYS PRIOR TO THE REMOVAL OF SUCH PRODUCT THEREFROM NO CHILDREN UNDER THE AGE OF 14 YEARS WERE EMPLOYED OR PERMITTED TO WORK AND CHILDREN BETWEEN THE AGES OF 14 YEARS AND 16 YEARS EMPLOYED OR PERMITTED TO WORK MORE THAN EIGHT HOURS IN ANY DAY OR MORE THAN SIX DAYS IN ANY WEEK, OR AFTER THE HOUR OF 7 O'CLOCK P. M. OR BEFORE THE HOUR OF 6 O'CLOCK A. M.

BEECH-NUT FOIL CO., CANAJOHARIE, N. Y.

Received 1-30-25
Your Order 1-30-25
Our Order No. 7069
Salesman J CASE
Terms 2 % 10 days or on arrival of goods as evidenced by destination freight bill attached to remittance.
Sold to SAME

BEECH-NUT FOIL CO.

BUILDING 19, BUSH TERMINAL
BROOKLYN, N. Y.

Consigned to
FERDINAND GUTMANN & CO
BUSH BLDG # 19
BROOKLYN N Y

Route via BEARER

F O B N Y CITY

QUANTITY	DESCRIPTION	WEIGHT		PRICE	AMOUNT	TOTAL
	PURE TIN FOIL 1" WIDE	34# NET		7260		$ 24.68

228/2
CRB

8661

1075

PURE TIN FOIL
COMPOSITION FOIL
TEA LEAD
Plain or Interleaved,
in
Rolls or Sheets
Embossed or Printed
ELECTROTYPERS' FOIL

INVOICE
881
REMIT BY CHECK OR DRAFT ON NEW YORK PAYABLE TO COMPANY AT CANAJOHARIE, N. Y.
FEB 17 1925

WE, THE UNDERSIGNED, DO HEREBY GUARANTEE THAT THE ARTICLES OR COMMODITIES LISTED HEREIN WERE PRODUCED OR MANUFACTURED BY US IN A FACTORY IN WHICH NO DAYS PRIOR TO THE REMOVAL OF SUCH PRODUCT THEREFROM NO CHILDREN UNDER THE AGE OF 14 YEARS WERE EMPLOYED OR PERMITTED TO WORK NOR CHILDREN BETWEEN THE AGES OF 14 YEARS AND 16 YEARS EMPLOYED OR PERMITTED TO WORK MORE THAN EIGHT HOURS IN ANY DAY OR MORE THAN SIX DAYS IN ANY WEEK, OR AFTER THE HOUR OF 7 O'CLOCK P. M. OR BEFORE THE HOUR OF 6 O'CLOCK A. M.

BEECH-NUT FOIL CO., CANAJOHARIE, N. Y.

BEECH-NUT FOIL CO.

BUILDING 19, BUSH TERMINAL
BROOKLYN, N. Y.

Received 1-30-25
Your Order 1-30-25
Our Order No. 7069
Salesman J CAGE
Terms 2 % 10 days or on arriva goods as evidenced by destinat freight bill attached to remittance.
Sold to SAME

Consigned to
FERDINAND GUTMANN & CO
BUSH BLDG # 19
BROOKLYN N Y

Route via BEARER F O B N Y CITY

QUANTITY	DESCRIPTION	WEIGHT		PRICE	AMOUNT	TOTAL
	PURE TIN FOIL 1" WIDE	26# NET		7260		$ 18.8

2/6 CRES

9 173
69 15

[fol. 1076] DEFENDANT'S EXHIBIT I

(Letterhead of)

Beech-Nut Foil Company,
Bush Terminal Building, 19,
Brooklyn, N. Y.

Jan. 17, 1925.

Ferdinand Gutmann & Co., Bush Bldg. #19, Brooklyn, N. Y.

Att. Mr. Benno Cohn

GENTLEMEN:

Parties unknown to us, and having no commercial rating will please send references or remit with order.

All agreements made contingent upon strikes, fires, accidents, or causes beyond our control.

Quotations are based on present market prices, manufacturing costs, etc., and are subject to immediate acceptance by you and confirmation by us.

This will acknowledge receipt of yours of Jan. 16th, relative to the gutta percha delivery to us.

Your comments have been noted, and whatever is left of this material after mounting on the foil will most certainly be returned.

Assuring you of our best attention to the matter we are
Very truly yours, Beech-Nut Foil Co., J. P. Macauley,
Sales Department.

IPM/CW.

(Here follow 6 photos, side folios 1077-1082)

862A

DEFENDANT'S EXHIBIT J

1077

PURE TIN FOIL
COMPOSITION FOIL
TEA LEAD
Plain or Interleaved
in
Rolls or Sheets
Embossed or Printed
ELECTROTYPERS' FOIL

INVOICE
571
REMIT BY CHECK OR DRAFT ON NEW YORK PAYABLE TO COMPANY AT CANAJOHARIE, N. Y.
JAN 22 1925

12

BEECH-NUT FOIL CO., CANAJOHARIE, N. Y.

Received 1-17-25
Your Order LET 1-16-25
Our Order No. 6936
Salesman J CAGE
Terms 2 % 10 days or on arrival of goods as evidenced by destination freight bill attached to remittance.

BEECH-NUT FOIL CO.

BUILDING 19, BUSH TERMINAL
BROOKLYN, N.Y.

67371
United States District Court
Eastern District of New York
Exhibit 1 in evidence
Date Nov-7/31
Clerk
Deputy Clerk

Consigned to
FERDINAND GUTMANN & CO
BUSH BLDG # 19
BROOKLYN N Y

SAME

Route via BEARER

F O B N Y CITY

QUANTITY	DESCRIPTION	WEIGHT	PRICE	AMOUNT	TOTAL
1	CASE PURE TIN FOIL 1" WIDE	78 1/2# NET	7260		$ 56.99
	Mtd. on Betta Perdue				

RECD
PRICE
EXTEN
ENTERED
PAID
CHECK N

1178
Feb 3 1925

214
1
C&B

1078

CONFIRMATION OF SALE

BEECH-NUT FOIL CO.

Brooklyn, N. Y. Jan 17, 1925

To Ferdinand Gutmann & Company,

Bush Bldg. #19, B'klyn, N. Y.

We confirm sale to you as follows: Your Order No. Letter 1-16-25 Our Order No. 6936

Specifications Strictly Pure Tin Foil, mounted on guttapercha, interleav
with wax paper, .003" thick, in rolls 1" wide, core 1-9/32" in diame

Routing Via Platform to the above.

Quantity 100 Lbs. Case Markings B 1

Price $.7260 per lb.

Terms 2% 10 days. Delivery f. o. b. New York City.

NOTICE { Seller is not to be accountable for delays in shipment or delivery if caused by strikes, floods, fires or any contin
beyond seller's control. This acceptance is subject to approval of seller's credit department.

Salesman J. CAGE.

Form 723 BM Rev 10-25-24

Beech-Nut Foil Co.

Per J. P. Macauley

8620

1079

PURE TIN FOIL
COMPOSITION FOIL
TEA LEAD
Plain or Interleaved
in
Rolls or Sheets
Embossed or Printed
ELECTROTYPERS' FOIL

INVOICE

737

REMIT BY CHECK OR DRAFT ON NEW YORK PAYABLE TO COMPANY AT CANAJOHARIE, N. Y.

FEB 5 1925

WE, THE UNDERSIGNED, DO HEREBY GUA[redacted] THAT THE ARTICLES OR COMMODITIES LISTED HEREIN WERE PRODUCED OR MANU[redacted]ED BY US IN A FACTORY IN WHICH WITH IN 30 DAYS PRIOR TO THE REMOVAL OF SUCH PRODUCT THEREFROM NO CHILDREN UNDER THE AGE OF 14 YEARS WERE EMPLOYED OR PERMITTED TO WORK NOR CHILDREN BETWEEN THE AGES OF 14 YEARS AND 16 YEARS EMPLOYED OR PERMITTED TO WORK MORE THAN EIGHT HOURS IN ANY DAY OR MORE THAN SIX DAYS IN ANY WEEK, OR AFTER THE HOUR OF 7 O CLOCK P M OR BEFORE THE HOUR OF 6 O CLOCK A M

BEECH-NUT FOIL CO., CANAJOHARIE, N. Y.

BEECH-NUT FOIL CO.

BUILDING 19, BUSH TERMINAL
BROOKLYN, N.Y.

Received 1-30-25

Your Order 1-30-25

Our Order No. 7069

Salesman J CAGE

Terms 2 % 10 days or on arrival of goods as evidenced by destination freight bill attached to remittance.

Sold to SAME

Consigned to

FERDINAND GUTMANN & CO
BUSH BLDG # 19
BROOKLYN N Y

Route via BEARER

F O B N Y CITY

QUANTITY	DESCRIPTION	WEIGHT	PRICE	AMOUNT	TOTAL
1	CASE MID PURE TIN FOIL 1" CASE MARKED C 1	111# NET	7260		$ 80.59

REC'D —
PRICE —
EXTEN —
ENTERED 8191
PAID FEB 9 1925
CHECK No. 68710

221
1
CR3

BLANK

PAGE

8620

1080

PURE TIN FOIL
COMPOSITION FOIL
TEA LEAD
Plain or Interleaved
in
Rolls or Sheets
Embossed or Printed
ELECTROTYPERS' FOIL

INVOICE
734
REMIT BY CHECK OR DRAFT ON NEW YORK PAYABLE TO COMPANY AT CANAJOHARIE, N. Y.
FEB 5 1925

WE THE UNDERSIGNED DO HEREBY GUARANTEE THAT THE ARTICLES OR COMMODITIES LISTED HEREIN WERE PRODUCED OR MANUFACTURED BY US IN A FACTORY IN WHICH WITH IN 30 DAYS PRIOR TO THE REMOVAL OF SUCH PRODUCT THEREFROM NO CHILDREN UNDER THE AGE OF 16 YEARS WERE EMPLOYED OR PERMITTED TO WORK NOR CHILDREN BETWEEN THE AGES OF 16 YEARS AND 18 YEARS EMPLOYED OR PERMITTED TO WORK MORE THAN EIGHT HOURS IN ANY DAY OR MORE THAN SIX DAYS IN ANY WEEK, OR AFTER THE HOUR OF 7 O CLOCK P. M. OR BEFORE THE HOUR OF 6 O CLOCK A. M.

BEECH-NUT FOIL CO., CANAJOHARIE, N. Y.

BEECH-NUT FOIL CO.

BUILDING 19, BUSH TERMINAL
BROOKLYN.N.Y.

Received 1-30-25
Your Order 1-30-25
Our Order No. 7069
Salesman J CAGE
Terms 2 % 10 days or on arrival of goods as evidenced by destination freight bill attached to remittance.
Sold to SAME

Consigned to
FERDINAND GUTMANN & CO
BUSH BLDG # 19
BROOKLYN N Y

Route via BEARER F O B N Y CITY

QUANTITY	DESCRIPTION	WEIGHT	PRICE	AMOUNT	TOTAL
	PURE TIN FOIL 1" WIDE SHIPPED 2-4-25	503# NET	7260		$ 36.84

RECD
PRICE
EXTEN
ENTERED 2 181
PAID FEB 8 1925
CHECK # 6819

220
H

BLANK

PAGE

862E

1081

DEFENDANT'S EXHIBIT K

CONFIRMATION OF SALE

BEECH-NUT FOIL CO.

Brooklyn, N. Y., Jan. 30, 1925.

To Ferdinand Gutmann & Co.,

Bush Bldg. #19, B'klyn, N. Y.

We confirm sale to you as follows: Your Order No. 1-30-25 Our Order No. 7069

Specifications: Strictly Pure Tin Foil, .0045" thick, mounted on gutta percha, interleaved with heavy waxed paper, in rolls 1" wide, core 1 9/32" in diameter.

Routing: Via Platform to the above.

Quantity: 250 Lbs.

Price: $.7260 per lb.

Case Markings: C 1

Guttapercha to be furnished by customer.

Terms 2% 10 days. Delivery f. o. b. New York City.

NOTICE: Seller is not to be accountable for delays in shipment or delivery if caused by strikes, floods, fires or any contingencies beyond seller's control. This acceptance is subject to approval of seller's credit department.

Salesman J. CAGE

Beech-Nut Foil Co.

Per J. [illegible]

Eastern District of New York
Exhibit K in evidence
Date Sept 1/31
Clerk
Deputy Clerk

BLANK

PAGE

862F

1082

PURE TIN FOIL
COMPOSITION FOIL
TEA LEAD
Plain or Interleaved
in
Rolls or Sheets
Embossed or Printed
ELECTROTYPERS' FOIL

INVOICE
538
REMIT BY CHECK OR DRAFT ON
NEW YORK PAYABLE TO COM-
PANY AT CANAJOHARIE, N. Y.
JAN 19 1925.

WE, THE UNDERSIGNED, DO HER[redacted]ARANTEE THAT THE ARTICLES OR COMMODITIES LISTED HEREIN WERE PRODUCED [redacted]NUFACTURED BY US IN A FACTORY IN WHICH WITH 30 DAYS PRIOR TO THE REMOVAL [redacted]CH PRODUCT THEREFROM NO CHILDREN UNDER THE AGE OF 14 YEARS WERE EMPLOYED OR PERMITTED TO WORK, NOR CHILDREN BETWEEN THE AGES OF 14 YEARS AND 16 YEARS EMPLOYED OR PERMITTED TO WORK MORE THAN EIGHT HOURS IN ANY DAY OR MORE THAN SIX DAYS IN ANY WEEK, OR AFTER THE HOUR OF 7 O CLOCK P. M. OR BEFORE THE HOUR OF 6 O CLOCK A. M.

BEECH-NUT FOIL CO., CANAJOHARIE, N. Y.

BEECH-NUT FOIL CO.

BUILDING 19, BUSH TERMINAL
BROOKLYN, N.Y.

Received 12-31-24

Your Order LET 12-30-24

Our Order No. 6811

Salesman J CAGE

Terms 2 % 10 days or on arrival of goods as evidenced by destination freight bill attached to remittance.

Sold to SAME

Consigned to

FERDINAND GUTMANN & CO
BUSH BLDG # 19
BROOKLYN N Y

Route via MESSENGER

F O B N Y CITY

QUANTITY	DESCRIPTION	WEIGHT		PRICE	MO/A	TOTAL
1	PKGE PURE TIN FOIL 1" WIDE SHIPPED 1-13-25	14# NET		71½6		$ 10.07

REC'D
PRICE
EXTEN
ENTERED JAN 30 1925
PAID
CHECK No 6865

204
1
CRB.

BLANK

PAGE

[fol. 1083] DEFENDANT'S EXHIBIT L

(Letterhead of)

Reynolds Metals Company, Incorporated

General Offices, Louisville, Ky.

This Letter Written From New York Branch, 110 Bridge St., Brooklyn, N. Y.

January 24, 1929.

Ferdinand Gutmann Company, Bush Building #19, Brooklyn, New York.

All agreements contingent upon strikes, fires, accidents, or causes beyond our control.

Attention Mr. Cohn, Please

GENTLEMEN:

Confirming my visit to your office recently, regarding the matter of mounting aluminum foil to Gutta Percha, I quote you from letter received from Louisville in this matter, which is self-explanatory.

"We have been experimenting for sometime with the mounting of Aluminum Foil to Gutta Percha and have finally succeeded in doing this satisfactorily.

With this letter we are sending you a few sheets of Aluminum Foil that has been mounted solid to Gutta Percha. This is a .0025" gauge Aluminum and the net yield of this [fol. 1084] foil with the Gutta Percha mounting is 2666 square inches per pound.

The sample you sent us with your letter is .002" gauge Aluminum and the net yield of this foil with Gutta Percha mounting is 3044 square inches per pound.

On .002 gauge Aluminum Foil, solid mounted to Gutta Percha, you can quote the customer as follows:

1000 pounds	$.839 a pound
500 pounds	.889 a pound
250 pounds	.949 a pound
100 pounds	1.049 a pound

Of course these prices are more or less estimates because we have not had experience in the manufacture of this foil upon which to base figures. Therefore, it may be necessary in the future to make a readjustment of these prices.

While you are looking this over, I am asking Louisville what happened to the samples they claim they were sending.

Very truly yours, Reynolds Metals Co. Inc., (Signed) J. Cage, James Cage.

JC:M.

[fol. 1085] (Letterhead of)

Reynolds Metals Company, Incorporated

General Offices, Louisville, Ky.

This Letter Written From New York Branch, 110 Bridge St., Brooklyn, N. Y.

January 30, 1929.

Subject: Gutta Percha Samples

All agreements contingent upon strikes, fires, accidents, or causes beyond our control.

Ferdinand Guttmann & Co., Bush Building #19, Brooklyn, New York.

Attention Mr. B. Cohen, Please

GENTLEMEN:

This confirms mailing to you last night of samples of foil mounted on Gutta Percha, which we trust will meet with your approval.

Awaiting your further advice, we are

Very truly yours, Reynolds Metals Co. Inc., (Signed) James Cage.

JC:M.

[fol. 1086] DEFENDANT'S EXHIBIT M

(Letterhead of)

Reynolds Metals Company, Incorporated

United States Foil Division, Louisville, Ky., U. S. A.

This Letter Written From New York Branch, 212 Fifth Ave., New York, New York.

March 12, 1929.

Ferdinand Gutmann Co., Bush Terminal Bldg. #19, Brooklyn, New York.

Attention Mr. B. Cohen—Please

GENTLEMEN:

In regard to your appreciated order for 100 pounds of gutta percha mounted Aluminum, we only had enough gutta percha to mount about 20 pounds, and are shipping you this quantity.

This will be enough, I believe, for you to look over, and we shall await further instructions before proceeding with the manufacture of the remainder, or a larger order.

Very truly yours, Reynolds Metals Co., Inc., (Signed) James Cage.

JC:M.

BLANK

PAGE

866

1087

DEFENDANT'S EXHIBIT N

REYNOLDS METALS CO

UNITED STATES FOIL COMPAN

INCORPORATED

LOUISVILLE, KY.

CABLE ADD. OL WEST. LIEBLER. "FOILWAX" ED NION A.B.C.

INVOICE NO. 7895
DATE 8/20/29 P. O. NO. K 2956
SHIPPED TO
SHIPPED FROM
F. O. B.
TERMS NET 30 DAYS
SHIPPED VIA EXP COLLECT CAR

SOLD TO
FERDINAND GUTMANN COMPANY
BUSH TERMINAL BLDG
BROOKLYN N Y

FOR CUSTOMER'S USE

TERMS
F. O. B.
ACCOUNT
APPROVAL
TRANSPORTATION
RECEIVAL
CALCULATIONS
ADJUSTMENT
AUDITED

YOUR ORDER NO. SALES NO. CASE

DISCOUNT AMOUNTING TO $ WILL BE ALLOWED IF PAYMENT IS RECEIVED BY US ON OR BEFORE WILL NOT BE ALLOWED THEREAFTER NET

NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.			AMOUNT
	— BN ALP41			
	"CORRECTED INVOICE"			
3	PLAIN ALUMINUM FOIL			
	SIZE 1" ROLLS 204 1/2#	5015	102 56	
	42 IRON CORES	03 EA	1 26	
			103 82	
	LESS EXPRESS ALLOWED ON 259 GROSS AT 3 80 CWT		9 84	93 98
L8	THIS INVOICE IS ISSUED TOCORRECT OUR ORIGINAL INVOICE # 7895 DATED 8/20/29 PLEASE MAKE YOUR REMITTANCE ON THE CORRECTED AMOUNT			

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS—MASTER METAL WRAPPERS, CARTONS AND NOVELTIES.

E 7327

United States District Court
Eastern District of New York
Exhibit M in evidence
Date Nov 7 31
Clerk
Deputy Clerk

133/4 - 2044 Ay

EVTL
ENTERED SEP 20 1929
PMD
LEDGER No 11421

867

1088

REYNOLDS METALS CO

UNITED STATES FOIL COMPANY

INCORPORATED

LOUISVILLE, KY.

CABLE ADDRESS "FOILWAX"
CODES USED
WESTERN UNION
LIEBLERS AND A. B. C.

INVOICE NO. 7895
DATE 8/20/29
P. O. NO. X 2956
SHIPPED TO
SHIPPED FROM
F. O. B.
TERMS NET 30 DAYS
SHIPPED VIA EXP COLLECT CAR

SOLD TO
FERDINAND GUTMANN CO
BUSH TERMINAL BLDG
BROOKLYN N Y

FOR CUSTOMER'S USE

TERMS
F. O. B.
ACCOUNT
APPROVAL
TRANSPORTATION
RECEIVAL
CALCULATIONS
ADJUSTMENT
AUDITED

YOUR ORDER NO.

SALES NO CAGE

DISCOUNT AMOUNTING TO $ NET
WILL BE ALLOWED IF PAYMENT IS RECEIVED BY US ON OR BEFORE
WILL NOT BE ALLOWED THEREAFTER

NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE		AMOUNT
	8H ALP41			
3	PLAIN ALUMINUM FOIL			
	SIZE 1" ROLLS 204 1/2#	5015	102 56	
	42 IRON CORES	03 EA	1 26	
			103 82	
	LESS FREIGHT ALLOWED ON 259 GROSS AT 1 18 CWT		3 06	100 76
LB				

Do not pay
Corrected invoice
will be rendered

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS—MASTER METAL WRAPPERS, CARTONS AND NOVELTIES.

S

868

1089

Mill Order No. K 2956 Shipping Report No. 1409

UNIFORM EXPRESS RECEIPT

RAILWAY EXPRESS AGENCY **EXPRESS COMPANY**

NON-NEGOTIABLE RECEIPT Louisville, Ky. 8/20/29 192

Received from Reynolds Metals Co., Inc., Louisville, Ky. subject to the classification and tariffs in effect on the date hereof, the property herein and after described; and "Subject to the terms and conditions of the Uniform Express Receipt prescribed by the Interstate Commerce Commission, and in effect on the date of shipment."

Value herein stated and warranted by shipper to be Value not to exceed 50¢ per pound Dollars.

Consigned to FERDINAND GUTMANN CO., BUSH TERMINAL BLDG.

Destination BROOKLYN State of N. Y. County of

No. Packages	DESCRIPTION of ARTICLES and SPECIAL MARKS	WEIGHT Subject to Cor.	Class or Rate	Check Column	AMOUNT
3 BXS.	PLAIN ALUMINUM FOIL	289			C. O. D. $
					Charges COLLECT
					Amount if Prepaid

which the Company agrees to carry upon the terms and conditions printed on the back hereof, to which the shipper agrees, and as evidence thereof, accepts and signs this receipt.

REYNOLDS METALS CO., Inc., Shipper
M.G.T.

Per _____ For the Company

NOTE—The Company's charge is based upon the character of the property, of which its value is an element, and its value must be declared in writing by the shipper unless its character is otherwise disclosed. When goods are hidden from view by wrapping, boxing or other means and the Company is not notified of the character thereof, the shippers declaration of value may be made by notation, "not exceeding $50.00" or "not exceeding $500.00 or 50 cents per pound, actual weight."

869

1090

REYNOLDS METALS CO

UNITED STATES FOIL COMPANY

INCORPORATED

LOUISVILLE, KY.

CABLE ADDRESS "FOILWAX"
CODES USED
WESTERN UNION
LIEBLER'S AND A. B. C.

INVOICE NO. 6193
DATE 7/27/29 P. O. NO. K 1806
SHIPPED TO SAME
SHIPPED F[illegible]
F. O. B.
TERMS NET CASH 30 DAYS
SHIPPED VIA UNIV COLLECT CAR

SOLD TO
FERDINAND GUTMANN CO
#19 BUSH TERMINAL BLDG
BROOKLYN N Y

FOR CUSTOMER'S USE

TERMS
F. O. B.
ACCOUNT.
APPROVAL
TRANSPORTATION
RECEIVAL
CALCULATIONS
ADJUSTMENT
AUDITED

YOUR ORDER NO.

SALES NO. CAGE MAIL

DISCOUNT AMOUNTING TO $ NET
WILL BE ALLOWED IF PAYMENT IS RECEIVED BY US ON OR BEFORE
WILL NOT BE ALLOWED THEREAFTER

NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE		AMOUNT
	— MS ALP41			
3	PLAIN ALUMINUM FOIL UNMOUNTED			
	SIZE 1" WIDE 44 ROLLS 229 1/2#	5015	115 09	
	LESS FRT ON 285# GROSS AT 1 18 CWT		3 35	111 73
BHV				

RE'D B/L. [illegible]
PRICE
ENTERED 6261 L2 5nV
AID 11173

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS — MASTER METAL WRAPPERS, CARTONS AND NOVELTIES.

870

1091

REYNOLDS METALS CO

SH

UNITED STATES FOIL COMPANY

INCORPORATED

LOUISVILLE, KY.

CABLE ADDRESS "FOILWAX"
CODES USED
WESTERN UNION
LIEBLERS AND A. B. C.

INVOICE NO. 6219
DATE 7/25/29
SHIPPED TO SAME
SHIPPED FROM
F. O. B.
TERMS NET CASH 30 DAYS
SHIPPED VIA UNIV COLLEGT CAR

P. O. NO. K 2956

FOR CUSTOMER'S USE

TERMS
F. O. B.
ACCOUNT
APPROVAL
TRANSPORTATION
RECEIVAL
CALCULATIONS
ADJUSTMENT
AUDITED

SOLD TO
FERDINAND GUTMANNCO
#19 BUSH TERMINAL BLDG
BROOKLYN N Y

YOUR ORDER NO.

SALES NO. CAGE

DISCOUNT AMOUNTING TO $ NET
WILL BE ALLOWED IF PAYMENT IS
RECEIVED BY US ON OR BEFORE
WILL NOT BE ALLOWED THEREAFTER

NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE		AMOUNT
	— MS ALP41			
5	PLAIN ALUMINUM FOIL UNMOUNTED			
	SIZE 1" 102 ROLLS 530 1/2#	5015	266 05	
	LESS FRT ON 635# GROSS AT 1 18 CWT		7 49	258 56
BHV				

B, L. & C.

AUG 27 1929
AUG 27 1929
78223

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS—MASTER METAL WRAPPERS, CARTONS AND NOVELTIES.

871

1092

REYNOLDS METALS CO

UNITED STATES FOIL COMPANY

INCORPORATED

LOUISVILLE, KY.

CABLE ADDRESS "FOILWAX"
CODES USED
WESTERN UNION
LIEBLERS AND A. B. C.

INVOICE NO. 6111
DATE 7/26/29
SHIPPED TO
SHIPPED FROM
F. O. B.
TERMS NET CASH 30 DAYS
SHIPPED VIA EXP COLLECT CAR

P. O. NO. K 1806

SOLD TO
FERDINAND GUTMANN CO
#19 BUSH TERMINAL BLDG
BROOKLYN N Y

FOR CUSTOMER'S USE

TERMS
F. O. B.
ACCOUNT
APPROVAL
TRANSPORTATION
RECEIVAL
CALCULATIONS
ADJUSTMENT
AUDITED

YOUR ORDER NO.

SALES NO. CAGE MAIL

DISCOUNT AMOUNTING TO $ NET WILL BE ALLOWED IF PAYMENT IS RECEIVED BY US ON OR BEFORE
WILL NOT BE ALLOWED THEREAFTER

NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE		AMOUNT
	— MS ALP41			
4	PLAIN ALUMINUM FOIL UNMOUNTED			
	SIZE 1" WIDE 64 ROLLS 341#	5015	171 01	
	LESS EXPRESS ON 415# GROSS AT 3 80 CWT		15 77	155 24
BHV				

B/X 47

AUG 27 1929

78223

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS — MASTER METAL WRAPPERS, CARTONS AND NOVELTIES

872

1093

REYNOLDS METALS COMPANY

UNITED STATES FOIL COMPANY

INCORPORATED

LOUISVILLE, KY.

CABLE ADDRESS "FOILWAX"
CODES USED
WESTERN UNION
LIEBLERS AND A. B. C.

INVOICE NO. 4134
DATE 6/27/29
P. O. NO. K 1806
SHIPPED TO
SHIPPED FROM
F. O. B.
TERMS NET 30 DAYS
SHIPPED VIA UNIV COLLECT CAR

SOLD TO
FERDINAND GUTMANN CO
BUSH TERMINAL BLDG# 19
BROOKLYN N Y

FOR CUSTOMER'S USE

TERMS
F. O. B.
ACCOUNT
APPROVAL
TRANSPORTATION
RECEIVAL
CALCULATIONS
ADJUSTMENT
AUDITED

YOUR ORDER NO.
SALES NO. CAGE M
DISCOUNT AMOUNTING TO $ WILL BE ALLOWED IF PAYMENT IS RECEIVED BY US ON OR BEFORE WILL NOT BE ALLOWED THEREAFTER
NET

NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE		AMOUNT
	MS ALP41			
1	PLAIN ALUMINUM FOIL SIZE 26 3/4" 82#GROSS WT	62 1/2#	5015	31 34

REC'D 63½ lbs
PRICE
EXTEN.
ENTERED 7 2 05
PAID JUL 31 1929
8039

LS

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS—MASTER METAL WRAPPERS, CARTONS AND NOVELTIES.

873

1094

REYNOLDS METALS CO

UNITED STATES FOIL COMPANY

INCORPORATED

LOUISVILLE, KY.

CABLE ADDRESS "FOILWAX"
CODES USED
WESTERN UNION
LIEBLERS AND A. B. C.

INVOICE NO. 4088
DATE 6/26/29
P. O. NO K#M 1806
SHIPPED TO
SHIPPED FROM
F. O. B.
TERMS NET 30 DAYS
SHIPPED VIA UNIV COLLECT CAR

FOR CUSTOMER'S USE

TERMS
F. O. B.
ACCOUNT
APPROVAL
TRANSPORTATION
RECEIVAL
CALCULATIONS
ADJUSTMENT
AUDITED

SOLD TO
FERDINAND GUTMANN COMPANY
BUSH TERMINAL BLDG #19
BROOKLYN N Y

— YOUR ORDER NO.

SALES NO. CAGE M

DISCOUNT AMOUNTING TO $ WILL BE ALLOWED IF PAYMENT IS RECEIVED BY US ON OR BEFORE NET
WILL NOT BE ALLOWED THEREAFTER

NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE		AMOUNT
	— MS ALP41			
10	PLAIN ALUMINUM FOIL			
	SIZE 1" 1115#	5015	559 17	
	LESS FRT ON 1335#GROSS AT 1 18 CWT		15 75	543 42
L8				

1115# @ 51/4 Dlvd

205
JUL 31 1929
78039

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS—MASTER METAL WRAPPERS, CARTONS AND NOVELTIES.

874

1095

REYNOLDS METALSCO

UNITED STATES FOIL COMPANY

INCORPORATED

LOUISVILLE, KY.

CABLE ADDRESS "FOILWAX"
CODES USED
WESTERN UNION
LIEBLERS AND A. B. C.

INVOICE NO. 6347
DATE 3/6/29
P. O. NO. J 8445
SHIPPED TO
SHIPPED FROM
F. O. B.
TERMS NET 30 DAYS
SHIPPED VIA UNIV COLLECT CAR

SOLD TO
FERDINAND GUTMANN & CO
BUSH TERMINAL BLDG #19
BROOKLYN N Y

FOR CUSTOMER'S USE

TERMS
F. O. B.
ACCOUNT
APPROVAL
TRANSPORTATION
RECEIVAL
CALCULATIONS
ADJUSTMENT
AUDITED

YOUR ORDER NO.

SALES NO. CAGE

DISCOUNT AMOUNTING TO $ WILL BE ALLOWED IF PAYMENT IS RECEIVED BY US ON OR BEFORE NET
WILL NOT BE ALLOWED THEREAFTER

NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE		AMOUNT
	MS ALP41			
		30# = 2.11 NG		
		= .42 CL/69		
1	PLAIN ALUMINUM FOIL UNMTD			
	SIZE 1/7 ROLLS 21 1/2#	1 049	22 55	
	LESS FRT ON 42#GROSS AT 1 18 PER CWT		50	22 05
L8				

REC'D 3/12/29
PRICE
EATEN.
ENTERED
PAID.
CHECK No 27784 MAR 20 1929

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS—MASTER METAL WRAPPERS, CARTONS AND NOVELTIES.

BLANK

PAGE

875

1096

CABLE ADDRESS "FOILWAX" CODE USED WESTERN UNION LIEBERS AND A. B. C.

UNITED STATES FOIL COMPANY

SUCCEEDED BY REYNOLDS METALS CO MB ALP41

~~WX Borgen Green~~ BROOKLYN, N. Y.

BUSH BLDG #19

INVOICE NO. B 4564

SALES No. J CAGE P. O. No. BT 2393 3086 DATE 6/10/29

FOR CUSTOMER'S USE

SHIPPED TO

SHIPPED FROM BUSH TERMINAL PLANT

F. O. B. BKLYN DELVD

TERMS: 30 DAYS NET

SHIPPED VIA ME SSENGER CAR No.

TERMS

F. O. B.

ACCOUNT

APPROVAL

TRANSPORTATION

RECEIVAL

CALCULATIONS

ADJUSTMENT

AUDITED

SOLD TO

FERDINAND GUTMANN CO
BUSH BLDG #19
BROOKLYN N Y

DISCOUNT AMOUNTING TO $
will be allowed if payment is received by us on or before
WILL NOT BE ALLOWED THEREAFTER

YOUR ORDER NO.	NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE	
		CORRECTED INVOICE		
	1 CS	PLAIN ALUMINUM FOIL IN ROLLS		
		SIZE: 26" WIDE 91½ NET	.3615	$45.89
		GROSS: 121#		

REC'D PRICE EXTEN. NUMBERED JUL 3 1929 MAILED

Deduct as credit the difference between this and invoice 6/10/29

Please remit to Reynolds Metals Co.
Successors to United States Foil Co.
212 Fifth Avenue
New York

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS—TEA LEAD, WAXED PAPERS, METAL LINED FIBRE CANS

5

876

1097

CABLE ADDRESS "FOILWAX" CODES USED WESTERN UNION LIEBERS AND A. B. C.

UNITED STATES FOIL COMPANY

SUCCEEDED BY REYNOLDS METALS CO MS ALP41

BROOKLYN, N. Y.

BUSH BLDG #19

INVOICE NO. B 4564

DATE 6/20/29

SALES No. J CAGE

F. O. No. BT 2393 3086

FOR CUSTOMER'S USE

SHIPPED TO

SHIPPED FROM BUSH TERMINAL PLANT

F. O. B. BKLYN DELVD

TERMS: 30 DAYS NET

SHIPPED VIA MESSENGER

CAR No.

TERMS

F. O. B.

ACCOUNT

APPROVAL

TRANSPORTATION

RECEIVAL

CALCULATIONS

ADJUSTMENT

AUDITED

SOLD TO

FERDINAND GUTMANN CO
BUSH BLDG #19
BROOKLYN N Y

DISCOUNT AMOUNTING TO $ will be allowed if payment is received by us on or before WILL NOT BE ALLOWED THEREAFTER

YOUR ORDER NO.	NO. CASES	Our responsibility for safe delivery of goods ceases when we obtain Railroad Receipt in good order.	PRICE		
	1 68	PLAIN ALUMINUM FOIL IN ROLLS			
		SIZE: 26" WIDE 91½ NET	59		$53.99
		GROSS: 121#			45.89
					8.10

53/4 4%

199

JUN 20 1929

77799

Please remit to Reynolds Metals Co.
Successors to United States Foil Co.
212 Fifth Avenue
New York

PLAIN OR PRINTED ALUMINUM, PURE TIN AND COMPOSITION FOILS—TEA LEAD, WAXED PAPERS, METAL LINED FIBRE CANS

8

1093

DEFENDANT'S EXHIBIT O

FACTORIES:
LOUISVILLE · BROOKLYN · SAN FRANCISCO.
SALES OFFICES OR REPRESENTATION IN PRINCIPAL CITIES OF UNITED STATES · LONDON · COPENHAGEN · HAVANA · MANILA · MELBOURNE · SHANGHAI · TOKIO

REYNOLDS METALS COMPANY

INCORPORATED

UNITED STATES FOIL DIVISION

LOUISVILLE, KY., U.S.A.

CABLE ADDRESS: "FORLWAX"
CODES USED:
BENTLEY'S COMPLETE PHRASE
WESTERN UNION
LIEBERS AND A.B.C.

PURE TIN, ALUMINUM, COMPOSITION, LEAD, AND ZINC FOILS, MASTER METAL FOIL PRODUCTS, WRAPPERS, CARTONS, BOX TOPS, NOVELTIES, TINSEL, AND ALLIED ITEMS.

THIS LETTER WRITTEN FROM
NEW YORK BRANCH
110 Bridge St., Brooklyn, N. Y.

TELEPHONE TRIANGLE 1479 1480

61011
United States District Court
Eastern District of New York
Exhibit O in evidence
Date 10-7-35
Clerk
Deputy Clerk

February 8, 1929

Ferdinand Guttmann Inc.
Bush Building No. 19
Brooklyn, New York

Attention: Mr. B. Cohen, please

Gentlemen:

Our Louisville office advises that they feel they will have no trouble in mounting Gutta Percha to foil by the application of a mild heat, as suggested by you, and they would like to have a small trial order - say 50 or 100 pounds, for you to play with.

Will you oblige accordingly?

Very truly yours,

REYNOLDS METALS CO. INC.

James Cage

JC:M

James Cage

MASTER METAL PRODUCTS

878

1099

FACTORIES:
LOUISVILLE - BROOKLYN - SAN FRANCISCO.
SALES OFFICES OR REPRESENTATION IN PRINCIPAL CITIES OF UNITED STATES - LONDON - COPENHAGEN - HAVANA - MANILA - MELBOURNE - SHANGHAI - TOKIO

REYNOLDS METALS COMPANY
INCORPORATED
UNITED STATES FOIL DIVISION
LOUISVILLE, KY., U.S.A.

CABLE ADDRESS "FOILWAX"
CODES USED:
BENTLEY'S COMPLETE PHRASE
WESTERN UNION
LIEBERS AND A.B.C.

PURE TIN, ALUMINUM, COMPOSITION, LEAD, AND ZINC FOILS, MASTER METAL FOIL PRODUCTS, WRAPPERS, CARTONS, BOX-TOPS, NOVELTIES, TINSEL, AND ALLIED ITEMS.

SALES DEPARTMENT

- February 22, 1929 -

Ferdinand Gutmann & Company,
Bush Terminal Bldg., #19,
Brooklyn, N.Y.

Gentlemen:-

Your letter of February 9 has been forwarded from our New York office, and we have entered your order for 100 pounds of .0025 gauge Aluminum mounted with heat to gutta-percha and spooled in 1 inch rolls.

We don't know just what luck we will have with this order, we are confident we can turn out this foil satisfactorily, but of course do not wish to guarantee to do so until we have had the opportunity of making this trial run.

If we are successful this 100 pounds will be sent you in a week to ten days time.

We note your letter reads - "mounted on gutta-percha 9 to 10 square yards to the pound" but the gutta-percha we have been using yields approximately 7650 square inches to the pound.

Yours very truly
REYNOLDS METALS COMPANY, INC.

E. R. Thomson
SALES DEPARTMENT

ERT:I
ny

UNITED METALS CO., INC.

UNITED STATES FOIL CO., Inc.

LOUISVILLE, KY.

Form No. 331 8.11.28 12,500 Sets

MW

Date Cust. Order	2/9/29-2/15(14)	Order No.	J 8445
Date P. O.	FEB. 18, 1929 -		
Date Del. Des.	PROMPTLY -		
Ship To	FERDINAND GUTMANN & COMPANY.		
Street Address	BUSH TERMINAL BLDG. #19.		
City	BROOKLYN, N. Y.	Cust. Order No.	
Routing	VIA. UNIVERSAL -		

PROMPTLY -

Invoice To	SAME.		
Street Address			
City		Cust. Order No.	
Terms	NET CASH 30 DAYS.	F. O. B. Lou.	FRT. ALL'D. NOT TO EXCEED $1.50 PER CWT. ON SHIPMENTS OF 100# OR MORE.

CAGE-

Sales Credit	Inv's Req.	Invoice Stock No.	MS	Prices-Terms Approved

Design	Quantity	Size	Mfg. Stock No.
	100#	1" WIDE-	AL-P 41(MTD. TO GUTTA PERCHA) .0025 GAUGE.

No.	Paper Stock No.	Paper Wt.	Route	P. Class	Prod. Class	Inv. Stk. No.	Price
1							
2							
3							
4							
5							
6							
7							
8							
9							

Manufacturing Marks:-

USE 1-5/16" CORES.

MOUNTING IS TO BE DONE BY MEANS OF HEAT AND WITHOUT THE USE OF ANY ADHESIVE.

ACKNOWLEDGMENT

THANK YOU FOR YOUR ORDER

Of which this is an exact copy as released to our factory. Please check carefully and advise us at once if not in accordance with your specifications.

1100

878

BLANK

PAGE

880

DEFENDANT'S EXHIBIT P 1101

TELEPHONE 2473 WILLIAMSBURGH

OUR INVOICE NO. 2191

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

CROWN AND CORK MACHINERY

251-259 LEE AVENUE,
CORNER LORIMER STREET

BROOKLYN, N. Y. August 31, 1928.

SOLD TO Ferdinand Gutmann & Co.,

NET CASH 30 DAYS

166 - 59th St., Brooklyn, N. Y.

Aug.	28	1 Tin Foil Machine, with Standard Drum		950 00

Marked
Crown

DATE 9/23/33
PRICE 8% CUT
EXTEN
ENTERED J 144 OCT 3 - 1928
PAID 1054.90

E737/
United States District Court

1102

DEFENDANT'S EXHIBIT Q

881 1102

TELEPHONE 2473 WILLIAMSBURGH

OUR INVOICE NO. 2542

Your order of 4/6/29

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

CROWN AND CORK MACHINERY

251-259 LEE AVENUE
CORNER LORIMER STREET

BROOKLYN, N. Y.

April 30th 1929.

SOLD TO Ferdinand Gutmann & Company,
168 - 39th Street,
Brooklyn, New York.

NET CASH 30 DAYS

Apr.	24	1 Assembling Machine, with one (1) extra head, roll feed, clutch, large gear, motor attached under machine (your motor), bracket with stand, and hopper chute. Paper Feed changed to back of machine. 1 14" Grooved Wheel		1725 00

E 7374

United States District Court
Eastern District of New York
Exhibit Q in evidence (PX 4)
Date Nov - 7/31
Clerk
Deputy Clerk

REC'D 2/8/4 49
PRICE CK
EXTEN
ENTERED
PAID JUN 1 1929
77630

Mach a/c
Crowns

TELEPHONE 2473 WILLIAMSBURGH

OUR INVOICE NO. 2427

Your order of 3/2/29

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

CROWN AND CORK MACHINERY

251-259 LEE AVENUE
CORNER LORIMER STREET

BROOKLYN, N. Y.

March 30th 1929.

SOLD TO Ferdinand Gutmann & Company,
168 - 39th Street,
Brooklyn, New York.

NET CASH 30 DAYS

Mar.	19	1 Assembling Machine, with one (1) extra head, roll feed, clutch, large gear, motor attached(your motor), bracket with stand, and hopper chute	1700 00	
		Paper Feed changed to back of machine Extra	25 00	
		1 14" Grooved Wheel	NO CHARGE	
				1725 00

Mach a/c
Crowns

REC'D 2/8/4 Greg
PRICE CK.
EXTEN.
ENTERED $1725
PAID APR 24 1929
77264

TELEPHONE 2478 WILLIAMSBURGH

OUR INVOICE NO. 2815

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

251-259 LEE AVENUE,
CORNER LORIMER STREET

CROWN AND CORK MACHINERY

BROOKLYN, N. Y. DECEMBER 19th 1928.

1103 882

SOLD TO Ferdinand Gutmann & Co.,
168 - 59th St.
Brlyn, New York.

NET CASH 30 DAYS

Dec.	12	One (1) Assembling Machine, with one (1) extra head, roll feed, clutch, large gear, motor attached (your motor), bracket with stand and hopper chute.		1700	00	
"	12	One (1) 14" Grooved Wheel		No Charge		
						$1700 00

XX

REC'D OKeyk 16 7 1 Aug
PRICE
ENTERED
ENTERED
AIR
$160
JAN 18 1929
16610

Mach a/c Crown

TELEPHONE 2478 WILLIAMSBURGH

OUR INVOICE NO. 2811

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

251-259 LEE AVENUE,
CORNER LORIMER STREET

CROWN AND CORK MACHINERY

BROOKLYN, N. Y. September 17, 1928.

SOLD TO Ferdinand Gutmann & Co.,

NET CASH 30 DAYS 166 - 59th St., Brooklyn, N. Y.

Sept.	15	1 Assembling Machine, with one (1) extra head, roll feed, clutch, large gear, motor platform, bracket with stand and hopper chute.		1700	00	
		1 14" Grooved Wheel		No Charge		
						1700 00

REC'D 22/3 44
PRICE
ENTERED
ENTERED 1687
AIR OCT 17 1928
7bag8

Mach a/c Crown

883

1104

DEFENDANT'S EXHIBIT R

TELEPHONE 3473 WILLIAMSBURGH

OUR INVOICE NO. 1279

A. JOHNSON MACHINE WORKS INC.

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

CROWN AND CORK MACHINERY

251-259 LEE AVENUE
CORNER LORIMER STREET

BROOKLYN, N. Y. May 31, 1933.

SOLD TO Ferdinand Gutmann & Co.,

168 - 39th St., Brooklyn, N. Y.

1% CASH 30 DAYS

May	25	1 #68 Crown Assembling & Tin Foil Spot Machine, with Gluing Attachment.		2200 00	
		1 Gluing Attachment for previous machine) 1 Set Gear Guards " " ")		NO CHARGE	
				2200 00	
		Allowance for your parts	$100.00		
		Allowance in accordance with agreement of July 13, 1931, for return of #108 Lining Machine.	125.00		
				225 00	
					1975 00
					100 00

Deduct Less invoice 7/11/33 75 00

1 Johnson Celerited

1 Uhrin

Mach a/c Crowns

ASC 27/5 for

PRICE

EXTEN.

ENTERED AUG 8 - 1933

PAID 1438 Dft

67371 1875 00

United States District Court
Eastern District of New York
Exhibit R in evidence
Date 7/31

Clerk

Deputy Clerk

1105

6711

Telephone: Williamsburg 2473

RECEIVED FROM

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

251-259 LEE AVENUE
BROOKLYN, N. Y.

CROWN AND CORK MACHINERY

12616

Date June 15 1933

Name Ferdinand Gutmann & Co.

Address 168-39th St. Brooklyn N. Y.

Customer's Order No. _____ Driver Seaman

QUANTITY	DESCRIPTION OF ARTICLES	AMOUNT
1	#68 Crown Assembling &	
	Tin Foil Spot Machine	
	with Gluing Attachment.	
1	Extra Punch & Die	
	Returned following:	
1	Used Machine.	
2	½ H. P. Motors.	
2	Starting Boxes.	
2	Hopper Stands.	
	Tin Foil and Paper.	

ALL CLAIMS SHOULD BE REPORTED IMMEDIATELY

2

CUSTOMER'S COPY
KEEP THIS TICKET

A1116

885

1106

TELEPHONE 2473 WILLIAMSBURGH

OUR INVOICE NO. 4264

A. JOHNSON MACHINE WORKS INC.

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

CROWN AND CORK MACHINERY

251-259 LEE AVENUE
CORNER LORIMER STREET

BROOKLYN, N. Y. May 16, 1933.

SOLD TO Ferdinand Gutmann & Co.,

168 - 39th St., Brooklyn, N. Y.

NET CASH 30 DAYS

May	5	1	#68 Crown Assembling & Tin Foil Spot Machine	2200	00	
			Allowance for other parts $150.00			
			Allowance in accordance with agreement of July 13, 1931, for return of #108 Lining Machine. 125.00			
				275	00	
						1925 00

drum + drive for same roll feed

REC'D 3 00/3 4 cy
PRICE
EXTEN
ENTERED 1289
PAID MAY 18 1933.
80177

Mach a/c

TELEPHONE 2473 WILLIAMSBURGH

OUR INVOICE NO. 4281

A. JOHNSON MACHINE WORKS INC.

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

CROWN AND CORK MACHINERY

251-259 LEE AVENUE
CORNER LORIMER STREET

BROOKLYN, N. Y. June 19, 1933.

SOLD TO Ferdinand Gutmann & Co.,

168 - 39th St., Brooklyn, N. Y.

NET CASH 30 DAYS

June	15	1	#68 Crown Assembling & Tin Foil Spot) Machine, with Gluing Attachment.)		2200 00

Mach a/c
Crowns

REC'D 6/7 May 1933
PRICE
XTEN
ERED AUG 8 - 1933
4310

1107

TELEPHONE 2873 WILLIAMSBURGH

OUR INVOICE NO. 1283

A. JOHNSON MACHINE WORKS INC.

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

CROWN AND CORK MACHINERY

251-259 LEE AVENUE
CORNER LORIMER STREET

BROOKLYN, N. Y. June 19, 1933.

SOLD TO Ferdinand Gutmann & Co.,

168 - 39th St., Brooklyn, N. Y.

NET CASH 30 DAYS

June 7	1	#68 Crown Assembling & Tin Foil Spot Machine, with Gluing Attachment.	2200 00

Mach'y & Crowns

PLAN 424 4/13/33
PRICE
EXTRA 163
AUG 8 - 1933
1910

887

1108

DEFENDANT'S EXHIBIT S

TELEPHONE 5473 WILLIAMSBURGH

OUR INVOICE NO. 2152

A. JOHNSON MACHINE WORKS

TOOLS, DIES AND SPECIAL MACHINERY.

251-259 LEE AVENUE,
CORNER LORIMER STREET

BROOKLYN, N. Y. July 31, 1928

CROWNING MACHINES

CROWN AND CORK MACHINERY

SOLD TO Ferdinand Gutmann & Company,

168- 39th. Street, Brooklyn, New York.

NET CASH 30 DAYS

Correct Bill

July	17	1	Tin Foil Machine, with hopper	$1200. 00

E 7371
United States District Court
Eastern District of New York
Exhibit S in evidence
Date Nov 7/31
Clerk
Deputy Clerk

REC'D 16/7 2MK
PRICE
EXTEN
ENTERED 12 AUG 31 1928
PAID
CHECK NO 10999

Machine Crowns

888

DEFENDANT'S EXHIBIT T 1109

#546

2475

March 19th 1929.

Crown Cork & Seal Company, Inc.,
Eastern Avenue & 11th Street,
Highlandtown, Maryland.

Mar. 7 1 Tin Foil Machine 1400 00
1 Winding Machine 300 00
1700 00

Telephone: Williamsburg 2473

RECEIVED FROM

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

251-259 LEE AVENUE
BROOKLYN, N. Y.

CROWN AND CORK MACHINERY

10549

Date Mar. 7 1929

Name Crown Cork & Seal Co. Inc.,

Address Eastern Ave & 11th St. Highlandtown, Md.

Customer's Order No. _____ Driver Seaman

QUANTITY	DESCRIPTION OF ARTICLES	AMOUNT
1	Tin Foil ~~Coater~~ Machine	1400 00
1	Winding Machine	300 00
	Penn. R.R.	

ALL CLAIMS SHOULD BE REPORTED IMMEDIATELY

1 Received by W. L.

889

1110

8½x11 3 28 1927 P. D. 28529

(For use in connection with Domestic Straight Bill of Lading adopted by Carriers in Official, Southern and Western Classification Territories, March 15, 1922)

THIS MEMORANDUM is no acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper's No. _____

Agent's No. _____

THE PENNSYLVANIA RAILROAD COMPANY

RECEIVED, subject to the classifications and tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading,

at Wallabout Station, Brooklyn, N. Y., March 7, 192 9

from A. Johnson Machine Works

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee—For purposes of notification only.) Eastern Ave. & 12th St.

Consigned to Crown Cork & Seal Co., Inc.,

Destination Highlandtown, State of Maryland County of

Route

(Delivering carrier) Car Initial Car No.

No. Packages	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN
1	(One) Crate Machinery	2000#		

NO 2
PENNSYLVANIA RAILROAD CO
WALLABOUT STATION
BROOKLYN, N.Y.
RECEIVED
MAR. 7, 1929
E. PETIT, Agent.

If this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. (*See section 7 of conditions.*)

(Signature of consignor.)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per

(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

$

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE.—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding per

A. JOHNSON MACHINE WORKS Shipper Agent

Per J. W. Larson Per

Permanent post-office address of shipper 251-259 Lee Ave., Brooklyn, N. Y.

1111

February 28th 1929.

The Crown Cork and Seal Company,
Baltimore,
Maryland.

Att: Mr. L. F. Olt

Dear Sirs:-

I received your letter of February 27th in regards to the two machines for tin foil discs.

I expect to have these machines ready so that I can ship them to you either Monday or Tuesday of next week.

About two weeks ago I wrote Mr. McManus that I had quite a few Assembling Machines on hand and I offered him ten or twelve of them at a very low price. I have not heard anything from him in regards to same. I presume that he is so busy that he has no time to think about it as I could see when I was over there that he has his hands full with that big place, but I would appreciate it very much if you would remind him of it as I would like very much to send you a few of the machines that I have on hand.

With best regards, I remain

Yours very truly,

A.JOHNSON MACHINE WORKS

AJ:MS

891

1112

THE CROWN CORK AND SEAL COMPANY

BALTIMORE, U.S.A. February 27, 1929

NEW PROCESS CORK CO., Inc.
THE CROWN CORK & SEAL CO.
OF BALTIMORE CITY
CONSOLIDATED

A. Johnson Machine Works
251-259 Lee Avenue
Brooklyn, N. Y.

Gentlemen:

Referring to your conversation and correspondence with our Dr. Warth, would suggest that you send us on approval the machine for adhering the gutta percha lining to the tin foil. Also, the machine for cutting the tin foil and fastening same to the cork washer on finished crowns.

Trusting you will get these off to us promptly, advising us by return mail when shipment will be made, we remain

Very truly yours,

CROWN CORK & SEAL CO., INC.

L. F. Olt

LFO/LL

THE PERFORMANCE OF ALL AGREEMENTS ON OUR PART IS CONTINGENT UPON STRIKES, WARS, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL

892

1113

2605
Your order No.H-7818

May 31st 1929.
Crown Cork & Seal Company, Inc.,
Eastern Ave. & 11th Street,
Highlandtown, Maryland.

May 20 1 Tin Foil Machine 1400 00

Telephone: Williamsburg 2473

RECEIVED FROM

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

251-259 LEE AVENUE
BROOKLYN, N. Y.

CROWN AND CORK MACHINERY

10698

Date May 20, 1929.

Name Crown Cork & Seal Co. Inc.,

Address Eastern Ave & 11th St. Highlandtown, Md.

Customer's Order No. H 7818 Driver Seaman

QUANTITY	DESCRIPTION OF ARTICLES	AMOUNT
1	Tin Foil Machine	1400 —
	Penn. R. R.	

ALL CLAIMS SHOULD BE REPORTED IMMEDIATELY

2

CUSTOMER'S COPY
KEEP THIS TICKET

W. L.

81116

Shroyer System - Autographic Register Co., N. Y. & Hoboken, N. J.

1114

8½x11 3 28 1927 F. D. 2526

(For use in connection with Domestic Straight Bill of Lading adopted by Carriers in Official, Southern and Western Classification Territories, March 15, 1922)

THIS MEMORANDUM is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper's No. H 7818

Agent's No.

THE PENNSYLVANIA RAILROAD COMPANY

RECEIVED, subject to the classifications and tariffs in effect on the date of the receipt by the carrier of the property described in this Original Bill of Lading.

at Wallabout Station, Brooklyn, N. Y., May 20, 1929.

from A. Johnson Machine Works

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee—For purposes of notification only.)

Consigned to Crown Cork & Seal Co., Inc., Eastern Ave. & 11th St.

Destination Highlandtown, State of Maryland County of

Route

Car Initial Car No.

(Delivering carrier)

No. Packages	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN
1	(One) Crate Machinery	1700#		

If this shipment is to b delivered to the consigne without recourse on the con signor, the consignor shall sig the following statement:

The carrier shall not mak delivery of this shipment with out payment of freight an all other lawful charges. (Se *section 7 of conditions.*)

(Signature of consignor.)

If charges are to be prepai write or stamp here, "To b Prepaid."

Received $ to apply in prepayment of the charges on the proper described hereon.

Agent or Cashier

Per

(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

$

NO 4 PENNSYLVANIA R.R. STATION WALLABOUT BROOKLYN N.Y. RECEIVED MAY 20 1929 AGENT

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE.—Where the rate is dependent on value, shippers are required to state specifically, in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding per

A. JOHNSON MACHINE WORKS Shipper

Per J. W. Larson Per

Permanent post-office address of shipper 251-259 Lee Ave., Brooklyn, N. Y.

Pur. 150—300 pads—8-23-28.

LL
REQ. NO C-

894 1115 4J

Crown Cork and Seal Co., Inc.

ORDER H 7818

BALTIMORE, U. S. A.

5/10/29

TO A. Johnson Machine Works

251 Lee Avenue

Brooklyn, N. Y.

TERMS 30-days net

SHIPMENT DUE OUR PLANT at once.

SHIP VIA (See Reverse)

PLEASE DELIVER THE FOLLOWING AS PER INSTRUCTIONS ON REVERSE SIDE OF ORDER.
TO US AT HIGHLANDTOWN PLANT—DEPT. Request of Mr. L. F. Olt

1. Tin Foil Spotting Machine

To be shipped directly to us.

E

ADDRESS ALL CORRESPONDENCE RELATING TO THIS MATTER TO US AT EASTERN AVE & 11th ST HIGHLANDTOWN

BILL OF LADING MUST ACCOMPANY INVOICE

Oct. 5/20/29

MAIL INVOICES TO EASTERN AVENUE & 11TH STREET.
ORDER NO. MUST APPEAR ON ALL INVOICES.
BILLS MUST BE RENDERED ON DAY OF SHIPMENT.
NOTE ROUTING INSTRUCTIONS CAREFULLY.

Crown Cork and Seal Co., Inc.
L F Olt
PURCHASING AGENT

The Crown Cork and Seal Company,
Baltimore,
Maryland.

May 13th 1929.

Att: Mr. L. F. Olt
- Purchasing Department -

Dear Sirs:-

I received yours of May 10th with the enclosed order for one tin foil spotting machine.

I have made a little change on this machine which seems to me to be very good, and I will be able to ship this machine to you by Thursday of this week, and I want to thank you very much for this order.

I was also wondering if you are buying any more Lining Machines for screw caps as I have them perfect now so that they are running very good. I have made considerable changes on the last ones. One of the machines we built to take caps from 38 m/m up to 84. This machine we make for cutting and inserting pulp paper liners, but we make them with cork feed also if desired, and then we make a smaller machine that takes from 15 to 40 m/m. This one we generally make with two heads, one for inserting cork liners, and with cork feeds on same, and the other head for cutting and inserting paper liners.

I expected Mr. Lloyd to come up and see these machines soon, but I have not heard anything from him as yet. I would surely like to sell you a few of these machines as I know that you will be very well pleased with them.

Again thanking you for this order, I remain, with best regards

Yours very truly,

A. JOHNSON MACHINE WORKS

895 1116

THE CROWN CORK AND SEAL COMPANY

BALTIMORE, U.S.A. May 10, 1929.

NEW PROCESS CORK CO., Inc
THE CROWN CORK & SEAL CO
OF BALTIMORE CITY
CONSOLIDATED

A. Johnson Machine Works,
251 Lee Avenue,
Brooklyn, N. Y.

SUBJECT:- Attached order.

Gentlemen:-

We are attaching hereto our order #H-7818 calling for one Tin Foil Spotting Machine to be shipped direct to us.

We would appreciate your reply, by return mail, as to when this machine will be shipped.

Thanking you in advance for your prompt co-operation, we are,

Yours very truly,

CROWN CORK & SEAL CO. INC.

L J Olt

Purchasing Department

HMD

THE PERFORMANCE OF ALL AGREEMENTS ON OUR PART IS CONTINGENT UPON STRIKES, WARS, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL

1117 896

2723

Your order No. H 9100

July 31st 1929

Crown Cork & Seal Co., Inc.,
Eastern Ave. & 11th St.,
Highlandtown, Md.

July 31 3 Tin Foil Machines, with Assorting Attachment, but without foil cutting die.) 4200 00

Telephone: Williamsburg 2473

RECEIVED FROM

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

251-259 LEE AVENUE
BROOKLYN, N. Y.

CROWN AND CORK MACHINERY

10820 Date July 31, 1929

Name Crown Cork & Seal Co. Inc.

Address Eastern Ave. & 11th St, Highlandtown, Md.

Customer's Order No. H 9100 Driver Seaman

QUANTITY	DESCRIPTION OF ARTICLES	AMOUNT
3	Tin Foil Machines, with Assorting Attachment, but without foil cutting die.	4200
	Penn. R. R. Co.	

ALL CLAIMS SHOULD BE REPORTED IMMEDIATELY

2

CUSTOMER'S COPY
KEEP THIS TICKET

W. L.

81116⁴

Tin

897

1118

e111

2837
Your Order No. H 9100

October 16, 1929.

Crown Cork & Seal Co., Inc.,
Eastern Ave. & 11th St.,
Highlandtown, Md.

July 31 3 Foil Cutting Dies for Tin Foil Machines) at $35.00 each 105 00

Telephone: Williamsburg 2473

RECEIVED FR M

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

251-259 LEE AVENUE
BROOKLYN, N. Y.

CROWN AND CORK MACHINERY

10828

Date July 31, 1929

Name Crown Cork & Seal Co., Inc.,

Address Eastern Ave. & 11th St., Highlandtown, Md.

Customer's Order No. H 9100 Driver Seaman

QUANTITY	DESCRIPTION OF ARTICLES	AMOUNT
3	Foil Cutting Dies for Tin Foil Machines @35.00 Each	105 00
	Penn. R. R. Co.	

ALL CLAIMS SHOULD BE REPORTED IMMEDIATELY

2

CUSTOMER'S COPY
KEEP THIS TICKET

W L.

81116 T/15

898

1119

(For use in connection with Domestic Straight Bill of Lading adopted by Carriers in Official, Southern and Western Classification Territories, March 15, 1922.)

THIS MEMORANDUM is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper's No. H 9100

Agent's No.

THE PENNSYLVANIA RAILROAD COMPANY

RECEIVED, subject to the classifications and tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading,

At Wallabout Station, Brooklyn, N. Y., July 30, 1929

From A. Johnson Machine Works

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee—For purposes of notification only.)
Eastern Ave. & 11th St.

Consigned to Crown Cork & Seal Co., Inc.

Destination Highlandtown. State of Maryland County of

Route

(Delivering carrier) Car Initial Car No.

No. Packages	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN
3	(Three) Crates Tin Foil Spotting Machines)	4860#		

If this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. (*See section 7 of conditions.*)

(Signature of consignor.)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per

(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

$

PENNSYLVANIA R. R. SYSTEM
WALLABOUT STATION
BROOKLYN, N.Y.
RECEIVED
JUL 31 1929
E. PETTIT
AGT.

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE.—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

per

A. JOHNSON MACHINE WORKS Shipper Agent

Per J. K. Larson Per

Insert street post office address of shipper 251-259 Lee Ave., Brooklyn, N. Y.

1120 - 899-900 July 5th 1929.

Crown Cork & Seal Company, Inc.,
Baltimore,
Md.

Att: Mr. W. T. Larduskey
-Purchasing Agent-

Dear Sirs:-

I received your order today for three Spotting Machines without the tin foil cutting dies.

I will have these machines ready for delivery in about ten days or at the most two weeks, but regarding the freight to Baltimore, I want to state that the price is F.O.B. NEW YORK. We do not pay any freight outside of this city.

I wanted to mention that so there would be no misunderstanding about same.

Thanking you for the order, I remain

Yours very truly,

A.JOHNSON MACHINE WORKS

AJ:WS

Pur 150- 10 pads—N-338

REQ NO

Crown Cork and Seal Co., Inc. ORDER NO 9100

BALTIMORE, U. S. A.

7/3/29

TO A. Johnson Machine Works
251 Lee Avenue
Brooklyn, N. Y.

TERMS 30-days net
SHIPMENT DUE OUR PLANT at once
SHIP VIA (Our terms)

PLEASE DELIVER THE FOLLOWING AS PER INSTRUCTIONS ON REVERSE SIDE OF ORDER.
TO US AT HIGHLANDTOWN PLANT DEPT.

3	Spotting machines complete with all parts as previously supplied, including inspection conveyor belt but without foil cutting die.

ADDRESS ALL CORRESPONDENCE RELATING TO THIS MATTER TO US AT EASTERN AVE & 11th ST HIGHLAND TOWN

f.o.b. Baltimore, frt. must be prepaid.

Delivery:-10-days as per your telegram.

BILL OF LADING MUST ACCOMPANY INVOICE

MAIL INVOICES TO EASTERN AVENUE & 11TH STREET.
ORDER No. MUST APPEAR ON ALL INVOICES.
BILLS MUST BE RENDERED ON DAY OF SHIPMENT.
NOTE ROUTING INSTRUCTIONS CAREFULLY.

Crown Cork and Seal Co., Inc.
W T Larduskey
PURCHASING AGENT

[fol. 1121] DEFENDANT'S EXHIBIT U

IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

ALBIN H. WARTH

vs.

JOHN A. JOHNSON

Petition to Institute Public Use Proceedings

To the Hon. Commissioner of Patents:

Now comes John A. Johnson, by his attorney, John O. Seifert, and petitions for the suspending of the proceedings in the above entitled interference and the issue of an order to institute public use proceedings to investigate the question of the reducing of the invention of the counts of the interference to commercial use more than two years prior to the filing, April 4, 1933, and presenting of claims covering the invention and constituting the counts of the interference in the application of the junior party Warth, Serial No. 664,410, and constituting a statutory bar to the granting of a patent on said Warth application.

The petition is based on the decision, October 2, 1933, of the Examiner of Interferences denying a motion on behalf of the party Johnson to dissolve the interference on the ground that the issue counts are not supported by the disclosure in the specification and drawings of the Warth application, and the ground that the disclosure in the specification and drawings of the Warth application is inoperative, [fol. 1122] and also denying a motion made on behalf of the party Warth to shift the burden of proof in view of his earlier co-pending application Serial No. 494,401, filed November 7, 1930, which in turn is a division of his application Serial No. 159,743, filed January 7, 1927, and patented January 6, 1931. No. 1,788,260.

The issue of the interference comprises three counts which originated in and constitute claims 28, 29 and 30 of

the Johnson patent, and were copied in the Warth applica tion Serial No. 664,410, and read as follows:

"1. The method of assembling linings for sealing pad in receptacle closure caps, consisting in providing cap with sealing pads therein and a web of lining material ar ranged with an adhesive surface non-viscous at normal tem perature, heating the pads in the caps, and severing lining from the web of lining material and assembling the lining as they are severed from the web in the caps with the ad hesive surface in contact with the heated pads to rende the adhesive viscous and effect adhesion of the linings t the pads.

"2. The method of assembling linings for sealing pads i receptacle closure caps, consisting in providing caps wit sealing pads therein and a web of lining material arrange with an adhesive surface non-viscous at normal tempera ture, heating the pads in the caps, severing linings from th web of lining material and assembling the linings as the are severed from the web in the caps with the adhesive su [fol. 1123] face in contact with the heated pads to rende the adhesive viscous and effect adhesion of the linings i the caps under heat and pressure to effect an intimate ad hesion between the linings and pads.

"3. The method of assembling linings for sealing pads i receptacle closure caps, consisting in providing caps wit sealing pads therein and a web of lining material arrange with an adhesive surface non-viscous at normal tempera ture, heating the pads in the caps, severing the linings fro the web of lining material and assembling the linings a they are severed from the web in the caps with the adhesiv surface in contact with the heated pads to render the ad hesive viscous and effect adhesion of the linings to the pad then placing the linings in the caps under the heat and pre sure to effect an intimate adhesion between the linings an pads, and then placing the linings assembled in the caps un der pressure during the cooling thereof."

The invention relates to a method of assembling lining or "spots" on sealing or cushion pads in the well know crown bottle caps, the lining being affixed to the usual co pad by means of an adhesive which is rendered tacky o viscous when heated. The method specified in the coun

as stated by the Examiner of Interferences (lines 1-5, page 2 of his decision):

"consists in the step of preheating the cork pad and then ap- [fol. 1124] plying to it a lining having thereon a layer of the dried adhesive. The heat of the pad softens the adhesive which, in turn, unites the lining and pad."

He also stated, last two lines, page 2, and line 1, page 3:

"It is admitted that the principal method set forth in the Warth specification involves a simultaneous application of the lining and heat."

And lines 6-9, page 4:

"Thus it is clear that the so-called 'preheating' step occurs after the lining or spot is applied and not before as required in each of the issue counts."

And lines 15-18, page 4:

"The language relied upon by Warth, therefore, clearly fails to support the construction in conformity with the issue counts."

While the Examiner of Interferences held that the drawings and specification of the Warth application, Serial No. 664,410, involved in the interference, did not disclose the invention of the issue counts, nevertheless "as filed the (Warth) application contained the issue counts," and in view of the decision in Gugler, 1910 C. D., 210, held that "therefore, it cannot be held that the very counts which are present in the application as filed constitutes new matter," and denied that portion of the Johnson motion to dissolve [fol. 1125] the interference on the ground that the issue counts are not supported by the disclosure in said Warth application involved in the interference.

In this connection, attention is called to the fact that the claims constituting the issue counts did not originate with the party Warth, but originated in the application for the Johnson patent and were copied in the Warth application and comprise the only claims in the Warth application with a single additional nebulous claim alleged in Paper No. 2, filed in the Warth application to be "substantially claim 19 of the Johnson patent." This claim in the Warth application includes the element of the heated plunger *j* which was

not disclosed in the earlier Warth applications and was for the first time disclosed in the Warth application involved in the interference.

In connection with that portion of the Johnson motion based on the ground that the Warth disclosure is inoperative, the Examiner of Interferences stated, lines 4-8, page 6:

"the means disclosed by Warth is not even intended to perform the method set forth in the issue counts since it will not operate to heat the pad prior to the application of the spot."

From the foregoing excerpts from the decision of the Examiner of Interferences, it is clear that the only disclosure in the Warth application Serial No. 664,410 involved in the interference is in claims 1, 2 and 3, which were copied from the Johnson patent and presented in the Warth application as filed April 4, 1933.

[fol. 1126] The motion on behalf of the party Warth to shift the burden of proof was based upon the allegation that Warth's prior applications, Serial No. 159,743 and Serial No. 494,201, discloses the issue of the interference. The Examiner of Interferences in connection with said applications stated, lines 18-24, page 6, and lines 1-3, page 7:

"*The alleged disclosure in these earlier applications is found in the identical descriptive matter relied upon to support the issue in the Warth application 664,410 here involved.* This descriptive matter is discussed fully in connection with Johnson's motion to dissolve, where it was *held not to support the issue counts. There is no other matter in the drawings, descriptions, or claims of the earlier Warth applications that is pertinent to the particular method specified in the present issue.*"

In denying the Warth motion to shift the burden of proof, Examiner of Interferences stated, lines 4-16, page 7:

"While, as indicated in connection with the motion to dissolve, *it seems quite clear that the issue is not supported by the description or drawings in the Warth application,* it must be noted that even if some doubt exists, the burden of proof cannot be shifted; Munroe v. Alexander 1903 C. D. 334. Moreover, *it is well settled that where an applicant copies claims from a patent it is incumbent upon him to show that*

his application discloses the invention upon which the patent [fol. 1127] *claims were drawn.* Stunstrup v. Morton 58 App. D. C. 343, 1929 C. D. 153; Field v. Stow 49 (2d) 1072, 1931 C. D. 649." (Italics added.)

It is, therefore, clear that the only disclosure of the invention of the issue counts by the party Warth is by claims 1, 2 and 3 copied from the Johnson patent in the Warth application Serial No. 664,410 involved in the interference, said application having been filed April 4, 1933, one year less one day after the issue, April 5, 1932, of the Johnson patent No. 1,852,578 involved in the interference, and over three years after the filing date of the application for said Johnson patent, November 26, 1929.

The purpose of the public use proceedings is to show the reducing of the invention of the counts of the interference to commercial and public use more than two years prior to the filing, April 4, 1933, of the Warth application involved in the interference.

In support of the commercial and public use of the invention of the counts, more than two years prior to April 4, 1933, there is submitted herewith affidavits of the following parties:

Nicholas Corsi, Brooklyn, New York,
Vincent Scuderi, Brooklyn, New York,
Rudolph V. Fusco, Brooklyn, New York,
John W. Larson, Bogota, New Jersey,
Charles W. Molander, Sr., Brooklyn, N. Y.,
Alfred Krafft, Brooklyn, New York.
John O. Seifert, Flushing, L. I., and
John A. Johnson, Woodhaven, L. I.

[fol. 1128] Your petitioner offers, to produce the foregoing parties as witnesses, and possibly others, to substantiate the allegations of the affidavits.

The affidavits all set forth acts which took place more than two years prior to the filing of the Warth application, April 4, 1933. The Corsi and Scuderi affidavits set forth facts as to carrying out commercially and publicly spotting down caps as recited in the issue counts and that the machine for carrying out the method was purchased from the Johnson Machine Works, Inc. The Johnson, Fusco and Molander affidavits set forth the fact of the constructing of

machines for carrying out the method; the Johnson, Molander and Larson affidavits to the delivery of machines for carrying out the method to Ferdinand Gutmann & Co., the Arrow Bottle Cap Corporation, and the Crown Cork & Seal Co., Inc., and the Krafft and Seifert affidavits to the witnessing of the carrying out of the method.

Your petitioner also offers to bear the expense of the Office in conducting the investigation.

The petition is filed in duplicate and it is requested that the Office forward one set of the papers to the applicant or his attorneys.

The interference is between a patent and an application and is in its early stages. Neither party has taken testimony on the question of priority, and as public use will dispose of the application, in accordance with the decision in Sarfert v. Meyer, 1902, C. D. 30, it is not seen that there is any reason why the public proceedings should not be instituted.

Your petitioner, therefore, requests that the interference [fol. 1129] be suspended and an order issued to institute public use proceedings.

Respectfully submitted, John A. Johnson, by John O. Seifert, His Attorney. 277 Broadway, New York, N. Y.

December 4, 1933.

Affidavit

STATE OF NEW YORK,
County of New York, ss:

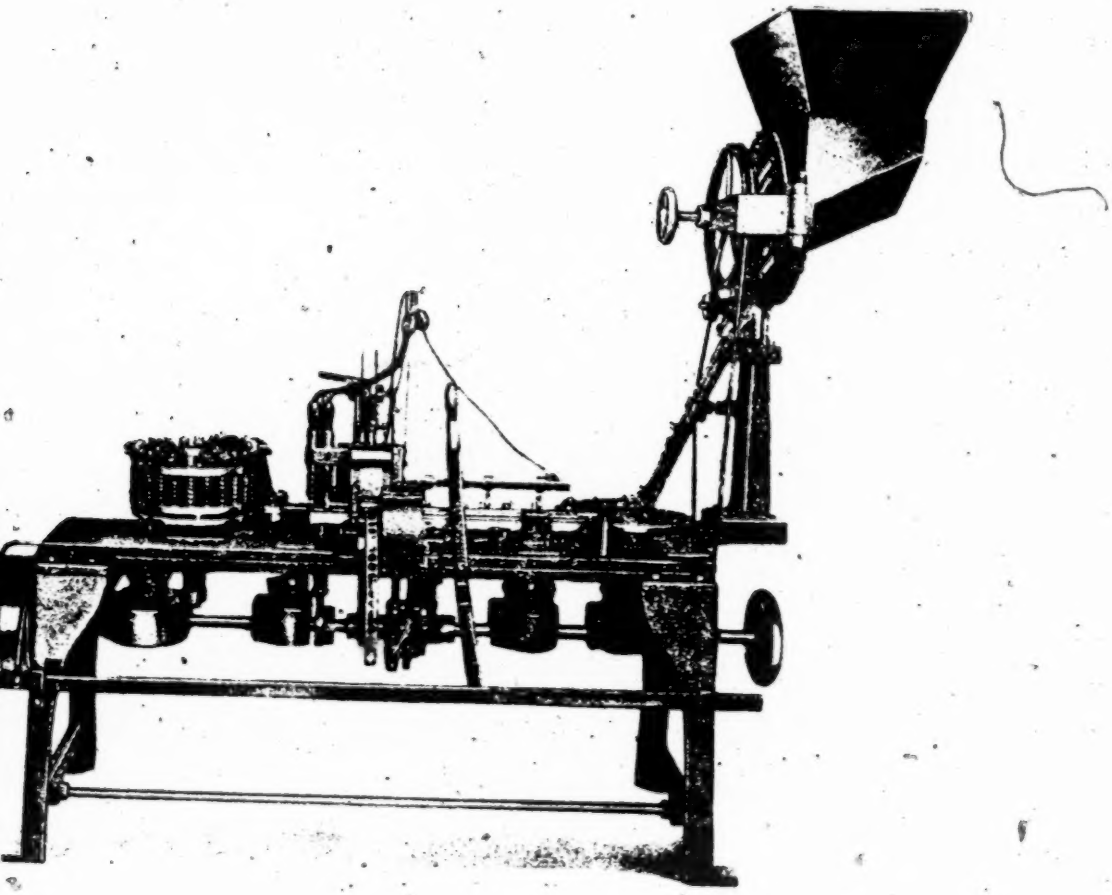
John A. Johnson, of Woodhaven, in the County and Borough of Queens, City and State of New York, being duly sworn, deposes and says that he is the patentee of Letters Patent No. 1,852,578, issued April 5, 1932, for Method of and Apparatus for Assembling Linings in Receptacle Closure Caps, and involved in interference No. 66,201 with the application of Albin H. Warth, Serial No. 664,410, filed April 4, 1933; that he is doing business under the name of A. Johnson Machine Works, Inc., located at 251-259 Lee Avenue, Brooklyn, New York; that prior to and since July 17, 1928, there was constructed in the shop of the A. Johnson Machine Works, Inc., machines for the spotting of crown [fol. 1130] bottle caps in accordance with the method set

forth in claims 28, 29 and 30 of said patent, said machines being constructed in all essential details as illustrated in the drawings forming a part of said Letters Patent and functioning as described in the specification thereof; that said machines for carrying out the method of claims 28, 29 and 30 of said patent have been in commercial and public use for more than two years prior to April 4, 1933, by Ferdinand Gutmann & Co., 168 39th Street, Brooklyn, New York; the Arrow Bottle Cap Corporation, 410 Morgan Avenue, Brooklyn, New York, and the Crown Cork & Seal Co., Inc., Baltimore, Maryland, the assignee of Albin H. Warth, whose application Serial No. 664,410 is involved in interference with patent No. 1,852,578, issued to me; that the illustration on the attached page 18 of the A. Johnson Machine Works, Inc. catalogue is a reproduction of a photograph of such a machine; that the parts and mechanism of said machines are in accordance with the machine illustrated in the drawings of patent No. 1,852,578, and the illustration on the accompanying page 18 of the catalogue of the A. Johnson Machine Works, Inc., and functions to carry out the method as stated in claims 28, 29 and 30 of said patent comprising the delivery of crown caps with sealing pads assembled therein by a chute 14 from a hopper to a rotatable table 18, (Figures 2 and 3), and from said disk 18 to a pair of rails 24 which support the caps at opposite marginal portions of the skirt, the caps being fed along said rails by a rack 29; that the pads in the caps are preheated as they are fed along said rails by an electric heater 46 superposed to the travel of the caps on the rails by [fol. 1131] pivoted arms 47; that the caps as they are delivered from the heater 46 are fed relative to punch and die mechanism, as shown in Figure 2 and in detail in Figures 6 and 10 to 15 of said Johnson patent, the punch co-operating with the die to cut a spot or disk from a web, shown at W, of a material impervious to moisture and having gutta percha bonded to one surface thereof, the punch in successive sequence with the cutting of the disk from the web depositing it upon the preheated pad with the gutta percha face in contact therewith, the heat of the pad rendering the gutta percha viscous or tacky and causing it to adhere to the preheated cap pad; that the crown caps with the spots so assembled on the pad therein are then placed under heat and pressure to effect an intimate uniting of

the spot with the cap pad by delivering the cap from the punch and die mechanism successively to heated plungers, as shown at 157 in Figure 1 and in detail in Figures 16 and 17, and the spots on the cap pads are then placed under pressure during the cooling period by delivering the caps from the heated plungers 157 to plungers 177 carried by a table 168, as shown in Figures 1 and 2, the caps being delivered by the rack 29 from the supporting rails 24 to the table 168 and the spots on the cap pads engaged by the plungers 177; that the machines upon delivery to Ferdinand Gutmann & Co. and the Arrow Bottle Cap Corporation were set up for operation and I have since at various times observed the operation of said machines in carrying out the method of spotting crown caps in accordance with the issue counts and upon information believe that the machines delivered to the Crown Cork & Seal

(Here follows 1 photo, folio 1132)

A. JOHNSON MACHINE WORKS, BROOKLYN, N. Y., U. S. A.



PATENTED AND OTHER PATENTS APPLIED FOR

No. 94 Johnson Tin Foil Center Machine

This machine is made for inserting centers on the cork disc in crown corks of tin foil or any other suitable material, and if desired, the whole cork disc can be covered. It can also be used for screw caps or any other caps that are made for the same purpose. It is provided with automatic roll feed and will not cut any material unless there are caps going through.

The heating for fusing the sticking material is done with electric heaters. The speed of this machine is about 200 to 225 per minute.

Size of driving pulley	12" diameter 3" face
Speed	225 R. P. M.
Floor space	6'x2'
Weight	1,400 lbs.

Page Tightly Bound

BLANK

PAGE

[fol. 1133] Co., Inc. were set up for operation and have been in operation ever since in the assembling of spots or linings upon pads of crown closure caps.

John A. Johnson.

Subscribed and sworn to before me this 31st day of October, 1933. (Signed, Jack Frost, Notary Public, N. Y. County, No. 200. Expires March 30, 1934. (Seal.)

Affidavit

STATE OF NEW YORK,
County of New York, ss:

John O. Seifert, of Flushing, in the Borough and County of Queens, City and State of New York, being duly sworn, deposes and says that he is the attorney for John A. Johnson whose patent No. 1,852,578 is involved in interference No. 66,201 with the application of Albin H. Warth, Serial No. 664,410, filed April 4, 1933; that he prepared and prosecuted the application for said Johnson patent No. 1,852,578; that prior to the preparation of said application, at the request of said Johnson, he called, January 22, 1929, at the shop of the A. Johnson Machine Works, Inc., 251-259 Lee [fol. 1134] Avenue, Brooklyn, New York, and examined a machine for the applying of linings or spots to the sealing or cushion pads of crown closure caps for receptacles, wherein the sealing pad assembled in the cap was preheated preparatory to cutting a disk or spot from a web of lining or spotting material having one surface coated with an adhesive material non-viscous or non-tacky at normal temperature and adapted to be rendered viscous or tacky by an elevated temperature, and assembling the cut disk upon the preheated sealing pads in the crown caps with the adhesive surface in contact therewith, the heat of the sealing pads rendering the adhesive of the cut disk viscous or tacky and thereby causing the same to adhere to the sealing pad of the crown cap, after which the linings or spots assembled on the cap pads are subjected to heat and pressure to cause an intimate uniting of the lining disks to the cap pads, and then placed under pressure during the cooling period; that he took with him, one, Alfred Krafft, of Brooklyn, New York, a draftsman, to witness the operation of machine at that time in the presence of said Krafft, said John A.

Johnson and, one, Rudolph V. Fusco, of Brooklyn, New York, and that the machine functioned to assemble linings or spots upon the sealing pads of crown caps in the manner above set forth; that linings or spots were applied to the sealing pads of several hundred crown caps, the machine first being run under power and then turned over by manual power in order that the carrying out of the several steps could be and were understood by deponent, the functioning of the machine in carrying out the steps of the method to assemble linings or spots upon the pads of crown [fol. 1135] caps being explained by said Johnson; that the drawings accompanying and forming a part of said Letters Patent No. 1,852,578 were made by said Krafft under the instructions of deponent and directions of said Fusco, and that the drawings of said patent illustrate the machine examined and operated before deponent at such time, January 22, 1929.

John O. Seifert.

Subscribed and sworn to before me this 29th day of November, 1933. (Signed) Jack Frost, Notary Public, N. Y. County, No. 200. Expires March 30, 1934. (Seal.)

Affidavit

STATE OF NEW YORK,
County of New York, ss:

Nicholas Corsi, of the Borough of Brooklyn, County of Kings, City and State of New York, being duly sworn, deposes and says that during October, 1930, he was associated with the Arrow Bottle Cap Corporation, then having a place of business at 410 Morgan Avenue, Brooklyn, New York; that said corporation purchased from the A. Johnson Machine Works, Inc., of 251-259 Lee Avenue, Brooklyn, New [fol. 1136] York, a machine for spotting sealing pads of crown closure caps for bottles, which machine was delivered at the place of business of said Arrow Bottle Cap Corporation on or about the 4th day of October, 1930; that the method of spotting crown closure caps as carried out by said machine consisted in the heating of the pads assembled in the crown caps, the crown caps then being successively presented to punch and die mechanism to cut a disk from a composite web of spotting or lining material impervious

to moisture and having a coating of gutta percha bonded on one surface thereof, the spot or disk as it is cut by the punch being in successive sequence positioned upon the heated pad of a crown cap, the heat of the cap rendering the gutta percha of the cut spot viscous or tacky and causing it to adhere to the cap pad, the crown cap with the spot or lining disk so assembled thereon then being presented to means to place the spot on the cap pad under heat and pressure to cause an intimate uniting of the spot to the cap pad, and from said heat and pressure means the cap is presented to means to place the spot and pad in the crown cap under pressure during the cooling period; that I have examined Patent No. 1,852,578, issued to John A. Johnson, April 5, 1932, for Method of and Apparatus for Assembling Linings in Receptacle Closure Caps; that the machine purchased by and delivered to the Arrow Bottle Cap Corporation on or about October 4, 1930, was constructed in accordance with the machine illustrated in the drawings of said Johnson patent, the crown caps being delivered by a chute 14 to a rotatable disk 18, (Figures 2 and 3), and from said disk 18 [fol. 1137] to a pair of rails 24 to support the caps at opposite marginal portions of the skirt, the caps being fed along said rails by a rack 29; that the pads in the caps are preheated as they are fed along said rails by an electric heater 46 superposed to the travel of the caps on the rails by pivoted arms 47; that the caps as they are delivered from the heater 46 are fed relative to punch and die mechanisms, as shown in Figure 2 and in detail in Figures 6 and 10 to 15 of said Johnson patent, the punch co-operating with the die to cut a spot or disk of lining material from a web, shown at W, of a material impervious to moisture and having gutta percha bonded to one surface thereof, the punch in successive sequence with the cutting of the disk from the web depositing it upon the preheated pad with the gutta percha face in contact therewith, the heat of the pad rendering the gutta percha viscous or tacky and causing it to adhere to the preheated cap pad; that the crown caps with the spots so assembled on the pad therein are then placed under heat and pressure to effect an intimate uniting of the spot with the cap pad by delivering the cap from the punch and die mechanisms successively to the heated plungers, as shown at 157 in Figure 1 and in detail in Figures 16 and 17, and the spots on the cap pads are then placed under pressure during the cooling period by delivering the caps from the

911

heated plungers to plungers 177 carried by a table 168, as shown in Figures 1 and 2, the caps being delivered by the rack 29 from the supporting rails 24 to the table 168 and the spots on the cap pads engaged by the plungers 177; that the machine was set up for operation immediately upon [fol. 1138] delivery; that the Arrow Bottle Cap Corporation was dissolved and since such dissolution there was formed the Ajax Bottle Cap Corporation, having a place of business at 12-26 Flushing Avenue, Brooklyn, New York, and of which corporation I am the President; that said Ajax Bottle Cap Corporation took over the machine hereinbefore referred to from the Arrow Bottle Cap Corporation, and said machine is now in operation in the plant of the Ajax Bottle Cap Corporation.

Nicholas Corsi.

Subscribed and sworn to before me this 28th day of November, 1933. Oscar Remberim, Notary Public, Kings County. Kings County Clerk's No. 610. Kings County Register's No. 5156. Commission expires March 30, 1935. (Seal.)

Affidavit

STATE OF NEW YORK,
County & City of New York, ss:

Vincent Scuderi, of the Borough of Brooklyn, County of Kings, City and State of New York, being duly sworn, deposes and says that during October, 1930, he was President of the Arrow Bottle Cap Corporation, having a place of business at 410 Morgan Avenue, Brooklyn, New York; that [fol. 1139] said corporation purchased from the A. Johnson Machine Works, Inc., of 251-259 Lee Avenue, Brooklyn, New York, a machine for spotting sealing pads of crown closure caps for bottles, which machine was delivered at the place of business of said Arrow Bottle Cap Corporation on or about the 4th day of October, 1930; that the method of spotting crown closure caps as carried out by said machine consisted in the heating of the sealing pads assembled in the crown caps, the crown caps then being successively presented to punch and die mechanism to cut a disk from a composite web of spotting or lining material impervious to moisture and having a coating of gutta percha bonded on one surface thereof, the spot or disk as it is cut by the punch

being in successive sequence deposited by the punch upon the heated pad of a crown cap, the heat of the cap pad rendering the gutta percha of the cut spot viscous or tacky and causing it to adhere to the cap pad, the crown cap with the spot or lining disk so assembled thereon then being presented to means to place the spot on the cap pad under heat and pressure to cause an intimate uniting of the spot to the cap pad, and from said heat and pressure means the cap is presented to means to place the spot and pad in the crown cap under pressure during the cooling period; that I have examined Patent No. 1,852,578, issued to John A. Johnson, April 5, 1932, for Method of and Apparatus for Assembling Linings in Receptacle Closure Caps; that the machine purchased by and delivered to the Arrow Bottle Cap Corporation on or about October 4, 1930, was constructed in accordance with the machine illustrated in the drawings of [fol. 1140] said Johnson patent and page 18 of the catalogue of the A. Johnson Machine Works, Inc., wherein the crown caps as illustrated in said patent are delivered from a hopper by a chute 14 to a rotatable disk 18, (Figures 2 and 3), and from said disk 18 to a pair of rails 24 to support the caps at opposite marginal portions of the skirt, the caps being fed along said rails by a rack 29; that the pads in the caps are preheated as they are fed along said rails by an electric heater 46 superposed to the travel of the caps by pivoted arms 47; that the caps as they are delivered from the heater 46 are fed relative to punch and die mechanism, as shown in Figure 2 and in detail in Figures 6 and 10 to 15 of said Johnson patent, the punch co-operating with the die to cut a spot or disk from a web, shown at W, of a material impervious to moisture and having gutta percha bonded to one surface thereof, the punch in successive sequence with the cutting of the disk from the web depositing it upon the preheated pad with the gutta percha face in contact therewith, the heat of the pad rendering the gutta percha viscous or tacky and causing it to adhere to the preheated cap pad; that the crown caps with the spots so assembled on the pad therein are then placed under heat and pressure to effect an intimate uniting of the spot with the cap pad by delivering the cap from the punch and die mechanism successively to heated plungers, as shown at 157 in Figure 1 and in detail in Figures 16 and 17, and the spots on the cap pads are then placed under pressure during the cooling

period by delivering the caps from the heated plungers 157 to plungers 177 carried by a table 168, as shown in Figures [fol. 1141] 1 and 2, the caps being delivered by the rack 29 from the supporting rails 24 to the table 168 and the spots on the cap pads engaged by the plungers 177; that the machine was set up for operation immediately upon delivery and was in operation up to the time of the dissolution of the Arrow Bottle Cap Corporation, at which time the machine was taken over by the Ajax Bottle Cap Corporation, of 12-26 Flushing Avenue, Brooklyn, N. Y., and I believe the machine is now in operation in the plant of the said Ajax Bottle Cap Corporation.

Vincent Scuderi.

Subscribed and sworn to before me this 2nd day of December, 1933. Ethel Zabell, Commissioner of Deeds. N. Y. Co. Clk's. No. 18, Reg. No. 44Z4. Commission expires April 12, 1934. (Seal.)

[fol. 1142] Affidavit

State of New York,
County of Kings, ss:

Rudolph V. Fusco, of the Borough of Brooklyn, County of Kings, City and State of New York, being duly sworn, deposes and says that he is employed in the Engineering Department of the A. Johnson Machine Works, Inc., located at 251-259 Lee Avenue, Brooklyn, New York; that said A. Johnson Machine Works, Inc., is the manufacturer of machines for spotting crown closure caps for receptacles wherein the method of spotting crown caps consists in the preheating of the pads assembled in the crown caps preparatory to the cutting of a spot or disk from the spotting material, said spotting material having bonded on one surface thereof gutta percha which is non-viscous or non-tacky at normal temperature and adapted to be rendered viscous or tacky when subjected to an elevated temperature, the crown caps with the preheated pads being presented to punch and die mechanisms for cutting a spot or disk from said spotting material and the punch in successive sequence with the cutting of the disk or spot depositing it upon the preheated pad of the crown cap, the heat of which pad renders the gutta percha coating of the spotting material viscous or tacky and causes it to adhere to the preheated

pad, the crown caps with spots assembled on the pads being fed from the punch and die mechanisms to means to place the spots and sealing pads of the crown caps under heat and pressure to effect an intimate uniting of the spot with the [fol. 1143] cap pad, after which they are subjected to pressure during the cooling period; that said machines are constructed in accordance with the disclosure in Patent No. 1,852,578, issued April 5, 1932, for Method of and Apparatus for Assembling Linings in Receptacle Closure Caps, the drawings forming a part of said patent having been made by a draftsman from working drawings and a machine for carrying out the method of spotting sealing pads on crown caps under my supervision; that machines were constructed in accordance with said patent to carry out the method as stated in claims 28, 29 and 30 of said patent during the months of June and July, 1928, during the months of February to July, 1929, and during the months of September-October, 1930, and said machines were delivered to purchasers and machines have been manufactured since in the shop of said A. Johnson Machine Works, Inc. for the spotting of sealing pads of crown caps for receptacles wherein the sealing pad assembled in the crown is preheated preparatory to the cutting and assembling of a lining spot thereon.

Rudolph V. Fusco.

Subscribed and sworn to before me this 10th day of November, 1933. Wm. W. Hulst, Notary Public, Nassau County. Certificate filed in Kings County. Clerk's No. 50, Kings Co. Regs. No. 5210. Commission expires March 30, 1935. (Seal.)

[fol. 1144] Affidavit

State of New York,
County of Kings, ss:

John W. Larson, of Bogota, in the County of Bergen and State of New Jersey, being duly sworn, deposes and says that he is in the emplay of the A. Johnson Machine Works, Inc., that his duties include the entering of orders and looking after the shipping and delivering of products manufactured by said A. Johnson Machine Works, Inc.; that machines for spotting or assembling of linings on the sealing pads of crown caps for receptacles, as disclosed on page 18

of the catalogue of the A. Johnson Machine Works, Inc., were shipped as follows:

1 machine to Ferdinand Gutmann & Co., 168 - 39th Street, Brooklyn, New York, July 17, 1928;

1 machine to the Crown Cork & Seal Co., Inc., Baltimore, Maryland, March 7, 1929; 1 machine May 20, 1929 and three machines July 31, 1929, and

1 machine to the Arrow Bottle Cap Corporation, 410 Morgan Avenue, Brooklyn, New York, October 4, 1930.

John W. Larson.

Subscribed and sworn to before me this 10th day of November, 1933. Wm. W. Hulst, Notary Public, Nassau County. Certificate filed in Kings County. Clerk's No. 50, Kings Co. Regs. No. 5210. Commission expires March 30, 1935. (Seal.)

[fol. 1145] Affidavit

STATE OF NEW YORK,
County of Kings, ss:

Charles W. Molander, Sr., of the Borough of Brooklyn, County of Kings, City and State of New York, being duly sworn, deposes and says that he is the Foreman in the shop of the A. Johnson Machine Works, Inc., located at 251-259 Lee Avenue, Brooklyn, New York; that prior to July 17, 1928, and up to the present time, he has supervised the construction of machines for assembling spots or lining disks upon sealing pads in crown bottle caps wherein the method of spotting the sealing pads consists in providing spotting material having an adhesive bonded to one surface thereof, cutting spots from said material and adhesively uniting the spots with the cap pads and is carried out by preheating the sealing pads in the caps prior to the cutting of the spots from the spotting material, the spots being cut from the spotting material by punch and die mechanism and the punch functioning in successive sequence with the cutting of the spot from the spotting material to deposit the cut spot upon and with the adhesive surface thereof in contact with the preheated cap pad, the heat of the pad rendering the adhesive viscous and effecting an adhesion of the spot to the cap pad, after which the spots on the pads are subjected to heat and pressure to effect an intimate uniting of the spot to the cap pad, and then subjected to

pressure during the cooling period; that the structure of the machines for carrying out the method of spotting sealing pads of crown caps as above set forth is in accordance with that illustrated in the reproduction of a photograph [fol. 1146] of the machine on page 18 of the catalogue of the A. Johnson Machine Works, Inc., attached to and forming a part of this affidavit; that I have examined patent No. 1,852,578, issued to John A. Johnson, April 5, 1932, for Method of and Apparatus for Assembling Linings in Receptacle Closure Caps, and said machines constructed under my supervision function to carry out the method of assembling linings or spots on sealing pads in crown bottle caps as is set forth in claims 28, 29 and 30 of said patent; that said machines constructed under my supervision were constructed in accordance with the machine in the drawings in said Johnson patent; that part of my duties consist in the supervision of getting ready for shipment the products manufactured by the A. Johnson Machine Works, Inc.; that machines in accordance with the machine illustrated on page 18 of the catalogue of the A. Johnson Machine Works, Inc., and in the drawings of said Johnson patent, were shipped to Ferdinand Gutmann & Co., 168 - 39th Street, Brooklyn, New York; to the Arrow Bottle Cap Corporation, 410 Morgan Avenue, Brooklyn, New York, and to the Crown Cork & Seal Co., Inc., Baltimore, Maryland.

Charles W. Molander, Sr.

Subscribed and sworn to before me this 10th day of November, 1933. Wm.. W. Hulst, Notary Public, Nassau County. Certificate filed in Kings County. Clerk's No. 50, Kings Co. Regs. No. 5210. Commission expires March 30, 1935. (Seal.)

[fol. 1147] Affidavit

STATE OF NEW YORK,
County of New York, ss:

Alfred Krafft, of Brooklyn, in the County of Kings, City and State of New York, being duly sworn, deposes and says that he is a Mechanical Engineer; that he made the original drawings constituting the drawings of Letters Patent No. 1,852,578, issued April. 5, 1932, to John A. Johnson, for

Method and Apparatus for Assembling Linings in Receptacle Closure Caps; that at the request and with one, John O. Seifert, the attorney for the patentee of said patent, he went on or about January 22, 1929, to the shop of the A. Johnson Machine Works, Inc., located at 251-259 Lee Avenue, Brooklyn, New York, for the purpose of examining a machine from which and in conjunction with working drawings the original drawings of said patent were made; that while at the shop at said time there was explained to me by said patentee, John A. Johnson, the construction and operation of the machine and the manner in which the machine functioned to carry out the method of assembling lining disks upon sealing pads by first feeding the crown caps with the pads therein exposed to an electric heater to effect the heating of the sealing pads in the crown caps, then delivering the caps to punch and die mechanism to perform the step of cutting a disk from a web of lining material having an adhesive on one surface thereof, the punch positioning the cut disk on the heated sealing pad with the adhesive surface in contact therewith and the heat of the pad ren- [fol. 1148] dering the adhesive tacky or viscous and thus causing the lining disk to adhere to the sealing pad, the caps with the linings assembled on the cap pads then being successively subjected to the action of heated plungers to place the linings on the cap pads under heat and pressure to effect an intimate uniting of the linings to the cap pads, and from said heated plungers were delivered to cold plungers to place the linings on the pads in the caps under pressure during the cooling period; that linings were assembled on several hundred caps, the machine being first operated under power and then turned over manually in order that the functioning of the machine in carrying out the method could be clearly observed; that subsequently thereto I called several times at the shop of said A. Johnson Machine Works, Inc., to compare and go over the drawings with the structure of the machine with one, Rudolph V. Fusco of the Engineering Department of the A. Johnson Machine Works, Inc.

Alfred Krafft.

Subscribed and sworn to before me this 31st day of October, 1933. (Signed) Jack Frost, Notary Public, N. Y. County, No. 200. Expires March 30, 1934. (Seal.)

[fol. 1149] DEFENDANT'S EXHIBIT V

April 22, 1935.

Memorandum on Visit to Mr. Johnson by B. C., Mr. William Warland and Mr. Frank T. Wentworth, April 18, 1935

The following is an extract of the conversation that took place:

Question. How long have you known of center-spot caps of any kind?

Mr. Johnson. I made a machine for a man by the name of Stewart about 26 years ago (here Mr. Johnson described the center-spot crown shown in the Nielson patent).

Question. Did you make a machine for that?

Mr. Johnson. Yes. Stewart was in Brooklyn at that time and later he moved to Millis.

Question. White Rock has used this cap ever since?

Mr. Johnson. Yes.

Mr. Johnson then stated that the crowns had natural-cork discs, composition-cork discs not yet being in use.

Question. When was the next spotting machine you made?

Mr. Johnson. I don't know.

Question. Was the next machine you made the one covered by your patent?

Mr. Johnson. Yes.

Question. Who next made center-spot caps?

Mr. Johnson. The first I heard from I think was McManus and Mundet and International Cork Company.

Question. About what date?

Mr. Johnson. My first record is the sale of my spotting [fol. 1150] machine. It took me about two years to develop the machine. I made five spotting machines for the Crown Cork & Seal Company in 1929.

Mr. Johnson was reminded of the affidavit he had made in the course of interference proceedings with Dr. Warth, and stated "Whatever I said in the affidavit in the interference proceedings is correct and is the best that I can remember."

Mr. Johnson stated that the first machine sold the Crown Cork & Seal Company was sold March 7, 1929; that a total of five machines were shipped to them; that the last machine was shipped July 31, 1929.

Mr. Johnson stated that the first of his spotting machines was sold to the Sociedad Industrial de Cuba on March 1, 1928; that the center spots were adhered to the cork disc in the cap by means of gutta-percha; and that one of his winding machines for adhering a strip of gutta-percha to a strip of metal foil was shipped on March 1, 1928, with the spotting machine. He stated further that right after that other concerns that the crown manufacturers buy material from furnished the foil and gutta-percha together. The winding machine did not take so long to develop as the spotting machine because it was simple. It took maybe two or three months.

Here there followed some discussion about the machines furnished to Ferdinand Gutmann & Co., both the machines for inserting center spots only and the machines for both assembling cork discs and inserting center spots.

Question. You said in your affidavit that you conceived [fol. 1151] the idea of this machine in 1925?

Mr. Johnson. Yes.

Question. If you conceived the idea of a machine there must have been a demand for the center spots?

Mr. Johnson. Yes.

Question. How did you know there was that demand?

Mr. Johnson. I knew of the crown that Stewart was making.

Beyond this Mr. Johnson was vague as to what center-spot crowns he may have seen in the market. He repeated what he had said about believing that Mundet and McManus and International had made center-spot crowns but stated that he could not remember clearly at this time any more any details in regard to this.

In the course of conversation Mr. Johnson showed Mr. Warland correspondence with Cushman, Bryant & Darby and also with Mr. Johnson's attorney, Seifert, showing that on Feb. 1, 1935, Mr. Johnson had given Crown Cork & Seal Company a list of the center-spot machines that he had sold and the parties to whom he had sold them, as follows:

1928—4
1929—9
1930—5
1931—3

1932—3
1933—10
1934—3

It developed in course of conversation that the eight machines sold to Ferdinand Gutmann & Co. and adapted to [fol. 1152] assembling cork discs into the crowns as well as inserting center spots were not included in the list that Mr. McManus (Johnson) furnished the Crown Cork & Seal Company. When asked why he had not included these machines in the list he stated that he did not know of any reason—he just happened to make up the list that way. The combination machines furnished to Ferdinand Gutmann & Co. he had given the Number 68, and he did not look up machine #68 when he furnished the list to Crown Cork & Seal Company.

While Mr. Johnson was busy in the shop his assistant, Mr. Larsen, read off from his book in which his record is kept, the following list of spotting machines sold by the Johnson Machine Works:

1 machine, March 1, 1928, Sociedad Industrial de Cuba.
1 " July 17, 1928, Ferdinand Gutmann & Co.
1 " Aug. 9, 1928, Giorgi Cicosse & Company, Brazil.
1 " Aug. 28, 1928, Ferdinand Gutmann & Co.
1 " March 7, 1929, Crown Cork & Seal Company.
1 " March 20, 1929, Consolidated Cork Company.
1 " March 28, 1929, Western Stopper Company.
1 " May 20, 1929, Crown Cork & Seal Company.
3 " July 31, 1929, Crown Cork & Seal Company.
1 " Dec. 19, 1929, Armstrong Cork Company.
1 " Dec. 29, 1929, Western Stopper Company.
1 " March 31, 1930, Hutchinson & Company.
1 " April 2, 1930, Usines A. Leenaards, Belgium.
1 " Sept. 15, 1930, Usines A. Leenaards, Belgium.
1 " Oct. 4, 1930, Arrow Bottle Cap Company (now either Ajax or Carvin Bottle Cap Company).

[fol. 1153]

1 machine, Oct. 16, 1930, Est. J. Schuyeroek, S. A., Belgium.
1 " Sept. 29, 1931, O. J. Calay & Cie, Belgium.
1 " Nov. 20, 1931, S. A. F. A. C., Buenos Aires.
1 " Dec. 14, 1931, Canadian Crown Cork Company.

1 machine, Jan. 15, 1932, Vicente Cadillach & Cie, Argentina.
1 " Feb. 25, 1932, Crown Cap Manufacturing Co.
1 " June 9, 1932, Wilson & Warden, Lt., Canada.
1 " Jan. 17, 1933, Armstrong Cork Co.
1 " April 11, 1933, Carvin Bottle Cap Company.
1 " June 6, 1933, Chicago Crown Company.
1 " July 3, 1933, Canadian Crown Cork Company.
1 " Oct. 3, 1933, Arco Bottle Cap Company.
3 " Oct. 23, 1933, Atlas Tack Company.
2 " Nov. 14, 1933, Atlas Tack Company.
1 " June 21, 1934, Burmeister Bros.
1 " July 26, 1934, Arco Bottle Cap Company.
1 " Dec. 31, 1934, Queensland Can Co., Australia.

BC:MF

Telephone conversation between B. C. and Mr. Larsen April 23rd, 1935.

One Winding Machine was shipped to the Crown Cork & Seal Co. March 7th, 1929, together with the first spotting machine shipped to them.

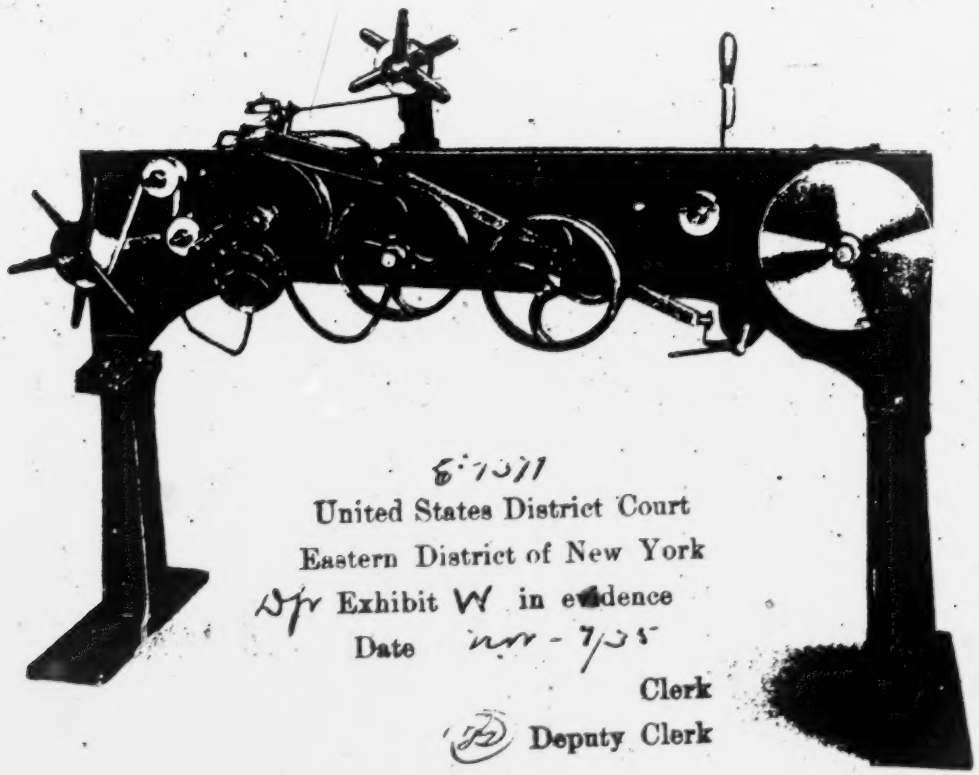
(Here follow 2 photos, side folios 1154 and 1155)

922A

1154

DEFENDANT'S EXHIBIT W

A. JOHNSON MACHINE WORKS, BROOKLYN, N. Y., U. S. A.



E-1311
United States District Court
Eastern District of New York
Dfr Exhibit W in evidence
Date NOV - 7/35
Clerk
Deputy Clerk

PATENT PENDING

No. 117 Johnson Winding Machine

This machine is made for adhering a gutta percha lining to tin foil or any other suitable material for covering liners in bottle caps; either partly or the whole liner.

It is provided with electric heating unit and also a heating control in order to keep an even temperature which is required.

Size of driving pulley	9" diameter 1½" face
Speed	250 R. P. M.
Floor space	5'x1'
Weight	350 lbs.

BLANK

PAGE

922B

1155

DEFENDANT'S EXHIBIT X

TELEPHONE 8479 WILLIAMSBURGH

OUR INVOICE NO. 3497

A. JOHNSON MACHINE WORKS

CROWNING MACHINES

TOOLS, DIES AND SPECIAL MACHINERY

CROWN AND CORK MACHINERY

251-259 LEE AVENUE
CORNER LORIMER STREET

BROOKLYN, N. Y.

March 18th 1931

SOLD TO Ferdinand Gutmann & Company

168 - 39th Street, Brooklyn, N.Y.

NET CASH 30 DAYS

Mar.	16	1 Lining Machine changed for small Caps, as per sample.	300	00	
		Motor Drive for above machine (motor supplied by Ferdinand Gutmann & Co.	50	00	
					350 00

7371
United States District Court
Eastern District of New York
Exhibit X in evidence
Date Jan 7/35
Clerk
Deputy Clerk

CLK. 277/4 44 S
TRS. OK CMR
EXTEN
ENTERED 966
APR 20 1931
83200

OK

BLANK

PAGE

[fols. 1156-1157] DEFENDANT'S EXHIBIT Y

License Agreement

This agreement entered into at New York, New York, this 12th day of December, 1933, by and between Crown Cork & Seal Co., Inc., hereinafter termed "Licensor," and John A. Johnson of Woodhaven, New York, hereinafter termed "Licensee," witnesseth:

Whereas by virtue of an assignment by the said John A. Johnson, Licensor is the owner of United States Letters Patent No. 1,852,578 granted April 5, 1932 for "Method—and Apparatus for Assembling Linings in Receptacle Closure Caps," and

Whereas Licensor has granted a certain license under said patent to Licensee dated the 12th day of December, 1933, said license specifically excluding rights under any other patents owned by Licensor, and

Whereas Licensor is the owner of United States Letters Patent No. 1,788,260 granted January 6, 1931 for "Process for Producing Closures" and

Whereas Licensor has heretofore charged Licensee with infringement of said patent No. 1,788,260 by virtue of Licensee's manufacture and/or sale of the machine disclosed in United States Letters Patent No. 1,852,578 granted April 5, 1932, and

Whereas Licensee desires under its aforesaid patent No. [fol. 1158] 1,852,578 granted April 5, 1932, to manufacture said machines within the terms of said license without infringing the aforesaid patent No. 1,788,260 owned by Licensor,

Now Therefore, in consideration of Ten Dollars ($10) from Licensee to Licensor in hand paid, the execution of the separate agreement dated the 12th day of December, 1933 and other good and valuable considerations hereby mutually acknowledged; the parties hereby agree as follows:

1. Licensor hereby grants to Licensee under its said patent No. 1,788,260 dated January 8, 1931 the license right which is necessary, and only such right, to permit Licensee to operate under its license granted under patent No. 1,852,578 dated April 5, 1932 by Licensor without infringing Licensor's patent No. 1,788,260 dated January 6, 1931.

2. It is mutually agreed that neither this license nor the acceptance of the assignment of said patent No. 1,852,578 granted April 5, 1932 waive any claims for past infringement which Licensor may have against Licensee under its

patent No. 1,788,260 nor any claim for past and future infringement which Licensee may have against users of machines manufactured and/or sold heretofore by Licensee under said patent No. 1,852,578 dated April 5, 1932.

3. Licensee hereby recognizes the validity of Licensor's patent No. 1,788,260 dated January 6, 1931 and agrees never to contest the validity thereof.

[fol. 1159] 4. Licensee further agrees that all machines manufactured under the license granted Licensee under patent No. 1,852,578 shall be properly marked with the number of said patent No. 1,788,260 dated January 6, 1931.

5. Licensor hereby grants to Licensee corresponding rights in foreign countries under any patent protection which may have been or may be granted upon the subject matter of United States Letters Patent No. 1,788,260, said rights to be subject to the same restrictions and conditions.

Crown Cork & Seal Co. Inc., Licensor, by Charles E. McManus, President. (Seal.)

Attest: J. J. Nagle, Secy.

John A. Johnson, Licensee.

Witness-: F. G. Fusting, John J. Darby.

STATE OF NEW YORK,
County of New York, ss:

On this 12th day of December, 1933 before me the undersigned, a notary public, appeared John A. Johnson to me known and known to me to be one of the parties identified in the foregoing instrument and he acknowledged that he [fol. 1160] executed the same of his own free will for the purposes set forth.

E. G. Mueller, Notary Public. Queens Co. Clerk's No. 2735, Register's No. 2674. Kings Co. Clerk's No. 203, Register's No. 4297. New York Co. Clerk's No. 730, Register's No. 4M460. Bronx Co. Clerk's No. 29, Register's No. 134M34. Commission expires March 30, 1934. (Seal.)

STATE OF NEW YORK,
County of New York, ss:

On this 12th day of December, 1933 before me the undersigned, a notary public, appeared Charles E. McManus to me known and known to me to be the President of the Crown Cork & Seal Co. Inc., in accordance with authority

duly given him by the Board of Directors of said company, and for the purposes therein set forth.

E. G. Mueller, Notary Public. Queens Co. Clerk's No. 2735, Register's No. 2674. Kings Co. Clerk's No. 203, Register's No. 4297. New York Co. Clerk's No. 730, Register's No. 4M460. Bronx Co. Clerk's No. 29, Register's No. 134M34. Commission expires March 30, 1934. (Seal.)

[fol. 1161] DEFENDANT'S EXHIBIT Z

(Letterhead of)

Crown Cork & Seal Company, Inc.

December 12th, 1933.

John A. Johnson, Esq., % A. Johnson Machine Works, Brooklyn, N. Y.

DEAR MR. JOHNSON:

In view of the concern which you expressed today, with regard to our claim for damages against you as contributory infringer, by virtue of your infringement of the Crown Cork & Seal Company's patent No. 1,788,260 in manufacturing machines under patent No. 1,852,578 and selling the same, I desire to assure you that our action for damages will not be against you as contributory infringer in manufacturing and selling such machines; but against the users of the same who purchased the machines from you.

Please understand, however, that this does not constitute a waiver of the legal claim.

Very truly yours, Crown Cork & Seal Company, Inc., by Charles E. McManus, President.

(Notation:) Accepted this 12th day of Dec. 1933. John A. Johnson.

Witnesses—John J. Darby, F. G. Fusting.

[fol. 1162] DEFENDANT'S EXHIBIT AA

Assignment

Whereas John A. Johnson of Woodhaven, New York, is the owner of the entire right, title and interest in and to United States Letters Patent No. 1,852,578 dated April 5, 1932 for "Method and Apparatus for Assembling Linings in Receptacle Closure Caps" and

Whereas the said John A. Johnson warrants that he is the owner of said patent free of any encumbrances and outstanding licenses or other right thereunder and

Whereas Crown Cork & Seal Co. Inc., a New York corpora-

tion desires to acquire the entire right, title and interest in and to said Letters Patent,

Now Therefore in consideration of Ten ($10) dollars by the said Crown Cork & Seal Co. Inc. paid to the said John A. Johnson, receipt of which is hereby acknowledged, the said John A. Johnson by these presents does sell, transfer and assign to the said Crown Cork & Seal Co. Inc. the entire right, title and interest in and to said Letters Patent as fully and entirely as the same would have been held and enjoyed by the said John A. Johnson if this assignment and sale had not been made,

And the said John A. Johnson by these presents does further assign to the Crown Cork & Seal Co. Inc. the right to recover for past infringement of said Letters Patent,

And he hereby covenants to execute any and all papers thought necessary by assignee to perfect and retain title in said assignee to said Letters Patents and/or reissue thereof,

[fol. 1163] And the said John A. Johnson further covenants and agrees that he will at any time, upon request and without further remuneration communicate to the Crown Cork & Seal Co. Inc. its successors, assigns or legal representatives, any facts relating to the said invention and such patent, or to the history thereof known to him, and will testify as to the same in any interference or litigation, in support thereof, when requested so to do.

In Witness Whereof I, the said John A. Johnson have hereunto set my hand and seal this 12th day of December, 1933.

STATE OF NEW YORK, John A. Johnson.
County of New York, ss:

On this 12th day of December, 1933 before the undersigned, a notary public, personally appeared John A. Johnson to me known and known to me to be the person described in, and who executed the foregoing assignment, and he duly acknowledged to me that he executed the same of his own free will for the use and purposes therein mentioned.

E. G. Mueller, Notary Public. Queens Co. Clerk's No. 2735, Register's No. 2674. Kings Co. Clerk's No. 203, Register's No. 4297. New York Co. Clerk's No. 730, Register's No. 4M460. Bronx Co. Clerk's No. 29, Register's No. 134M34. Commission expires March 30, 1934. (Seal.)

(Here follow 6 photos, side folios 1164-1169)

DEFENDANT'S EXHIBIT C C

926 A
1164

CABLE ADDRESS "HAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS WITHOUT US"

NEW YORK SALESROOMS
132 WEST 43RD ST.

B 7371
United States District Court
Eastern District of New York
Off Exhibit CC in evidence
Date Nov 4/35
Clerk
By Deputy

Sold to Insecto Inc.,
35 West 46th Street,
New York City.

Net, 30 days
Terms:
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Dec. 4, 1924.

SHIPPED TO

VIA Eastern Motor Transp. Co.

Yo-IV-161

10,000	Special decoration Crowns "B"	M 1.85	18	50	
	Tin Foil -parafine coated	M 1.15	11	50	
	2 colors--green & black.				
	A/C/Cont 5/21/24.				
	F.O.B. delivered.				
100,000	Special decoration "B" without Tin Foil	M 1.85	185	00	
					215 00

DEC 6 1924

OK

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

926B

1165

Cable Address "NANTUS" New York
Telephone Connection

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

NEW YORK SALESROOMS
128 WEST 42nd ST.

Sold to

Insecto Inc.
56 West 45th Street,
New York City.

Terms: , Net, 30 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Dec. 11, 1924.

SHIPPED TO VIA truck 10-14-439

300,000	Special decoration crowns "A" @ 1.85	555	00		
95,000	Special decoration Crowns "B" @ 1.85	175	75		
	Tin Foil-paraffine coated 95000 @ 1.15	109	25		
	2 colors--green & black.			840	00

A/C/Cont 5/21/24.
F.O.B. delivered.

DEC 13 1924

"A"	"B"
#1/8--25000	#30/32--25000
13/16-25000	#33---20000
300,000	95,000

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

926C

1166

DEFENDANT'S EXHIBIT D D

CABLE ADDRESS "NAMTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO. INC.

"YOUR INTERESTS INTEREST US"

NEW YORK SALESROOMS
182 WEST 42ND ST.

JAN 26

Sold to

Insecto Inc.
33 W. 46th St.
New York, N.Y.

Terms: Net cash 30 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Jan. 27, 1925

SHIPPED TO

VIA

84,750	Special decoration crowns - "B"	M 1.85	156	79-		
150	Tin foil, paraffine coated	M 1.80	152	55		
					309	34
4875	Shipped 1/22/25 by messenger. 2 packages					
4875	Shipped 1/22/25 by messenger. 1 package					
25000	Shipped 1/24/25 by Bush Truck. Case #3					
50000	Shipped 1/27/25 by Brodie's Truck. Cases #4/5					
	F.O.B. Destination					

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

926D

1167

DEFENDANT'S EXHIBIT E E

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

NEW YORK SALESROOMS
132 WEST 42ND ST.

Sold to

Inecto, Inc.,
33 W. 46th St.,
New York City

Terms: 30 days net
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

Feb. 5, 1925

SHIPPED TO

VIA Bush Truck

41,500	Special decoration "B" crowns	@ 1.85	76	78		
	Tin foil-paraffine coated	@ 1.80	74	70	151	48

A/C Cont 5/21/24

Case #6 - 25,000
" #7 - 16,500

F.O.B. delivered

Hall

O.K.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

926E

1168

DEFENDANT'S EXHIBIT F F

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

NEW YORK SALESROOMS
132 WEST 42ND ST.

Referred To Hall

Sold to

Approved By
Extension O.K
Acct Charged

Insecto Inc.
33 West 46th Street,
New York, N.Y.

Terms: Net cash 30days.
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. March 4, 1926.

SHIPPED TO

VIA Bush truck

64,200	Special decoration "B" caps received from you to have tin-foil inserted.	M1.80	115	56	115 56
	Case #7--1 case of 25,000 Case #8--1 case of 25,000 Case #9--1 case of 14,200				
	This leaves a balance of 285,800 of which 35,800 are to have tin-foil inserted.				
	F.O.B. destination.				

MAR 6 1926

O K
C Hall

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

926F

1169

DEFENDANT'S EXHIBIT G G

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

NEW YORK SALESROOMS
132 WEST 42ND ST,

Sold to Irenro Inc.,
33 west 46th St.,
New York, N.Y.

2/10 N/30
Terms:
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Dec. 19, 1925.

SHIPPED TO

VIA Bush truck

150,000	Special decoration "B" caps received from you, to have tin-foil inserted Cases #1/6-- 6 cases of 25,000 each This leaves a balance of 350,000 of which 100,000 are to have tin foil inserted. F.O.B. destination.	M 1.80	270 00

270 00

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

[fol. 1170] DEFENDANT'S EXHIBIT HH

Inecto, Inc., 33-35 West 46th Street, New York

Office of the Managing Director

February 4, 1925.

Ferdinand Gutmann & Co., Bush Terminal No. 19, 39th St. & 2nd Ave., Brooklyn, N. Y.

Att. Mr. Jesse Gutmann

This is to confirm our verbal instructions to you advising that you finish up 250,000 "B" caps returned to you by lining them with tin foil gutta-percha combination.

Very truly yours, Inecto, Inc., R. L. Evans.

RLE-MG.

22/25,000
1/13,500 563,500

[fol. 1171] DEFENDANT'S EXHIBIT II

Inecto, Inc., 33-35 West 46th Street, New York

Office of the Managing Director

March 9, 1925.

GENTLEMEN:

Attention Jesse Gutmann

Confirming our telephone conversation of this morning referring to your letter of yesterday, we do not want half an order (that is 125,000 B caps) supplied to us without paraffine. However, we are anxious to get just as soon as possible several hundred B caps without gutta percha but with tin foil inserted into cork with a shallow slot where no paraffine has been applied.

Very truly yours, R. L. Evans.

Ferdinand Gutmann & Co., Bush Terminal #19, 39th St. & 2nd Ave., Brooklyn, New York.

BLANK

PAGE

929

DEFENDANT'S EXHIBIT J J

1172

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

NEW YORK SALESROOMS
132 WEST 42ND ST.

United States District Court
Eastern District of New York
Exhibit ...in evidence
Date
Clerk
Deputy Clerk

Sold to Insecto Inc.,
33 West 46th St.,.
New York, N.Y.

Terms: Net cash 30 days.
Payable in N. Y. Exc'nge.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

March 26,1925.

SHIPPED TO

VIA rush truck.

25,000	Special Decoration "B" caps returned by you to have tin-foil inserted, Paraffine coated without Gutta Percha.	@ 1.15	28	75	28	75
	1 case #1.					
	F.O.B. destination.					

Hall

E. Hall

MAR 28

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

930

1173

DEFENDANT'S EXHIBIT K K

CABLE ADDRESS "HANTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS ARE OUR INTEREST"

NEW YORK SALESROOMS
132 WEST 43RD ST.

B 137
United States District Court
Eastern District of New York
Exhibit K K in evidence
Date
Clerk
Deputy Clerk

Sold to Ireeto Inc.,
33 West 46th St.,
New York , N.Y.

Terms: Net, 30 days.
Payable in N. Y. Exchange.
Goods shipped at purchasers risk

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. March 26, 1925.

SHIPPED TO VIA Motor truck.

25,000	Special decoration "B" caps received from you to have tin foil inserted. Paraffine coated without Gutta Percha	M 1.15	28 75	28 75
	1 Case #10.			
	F.O.B. destination.			

Referred To
Approved By
Extension O.K.
Acct. Charged

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

DEFENDANT'S EXHIBIT L L

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

NEW YORK SALESROOMS
132 WEST 42ND ST.

E 7211
United States District Court
Eastern District of New York
Exhibit L L in evidence
Date
Clerk
Deputy Clerk

Sold to Inecto, Inc.,
33 W. 46th Street,
New York, N.Y.

Net cash 30 days.

Terms:
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 14, 1925.

SHIPPED TO VIA Bush truck,

204450	Special decoration "B" caps returned by you to have tin-foil inserted.			
	Paraffine coated without gutta percha	M 1.15	235 12	235 12
	Cases #3/8-6 cases at 25,000 each=150,000			
	" #9	23,300		
	#10	20,600		
	#11	10,550		
		204,450		
	9 Cases.			
	F.O.B. delivered.			

Referred To
Approved By
Extension O.K
Acct Charged

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

932

1175

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your Interests Our Interest Too"

NEW YORK SALESROOMS
132 WEST 42nd ST.

APR 9 1925

Sold to Insecto, Inc.,
33 W. 46th Street,
New York, N.Y.

Terms: Net cash 30 days.
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 6,1925.

SHIPPED TO VIA Messenger.

1500	Special decoration "B" Caps returned by you to have tin foil inserted. Not paraffine coated and without gutta percha,	¥ 1.15	1	72	1	72
11"	F.O.B. destination.					

1500
1500
1500
1500

Referred To Hall
Approved By
Extension O K
Acct. Charged

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

933

1176

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.

"YOUR INTERESTS OUR CONCERN"

NEW YORK SALESROOMS
132 WEST 42ND ST.

Sold to

Net cash 30 days.

Insecto Inc.,
33 West 46th St.,
New York, N.Y.

Terms:
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N.Y.

March 27, 1925.

SHIPPED TO

VIA Truck

25,000	Special decoration "B" caps returned by you to have tin-foil inserted.					
11M	Paraffine coated without gutta percha	M 1.15	28	75	28	75
575						
30						
605						
487 5	F.O.B. Destination					
	1 case #2					

Referred to [illegible]
Approved By
Extension O.K. [illegible]
Acct Charged

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

934

1177

CABLE ADDRESS "NAMTUG" New York
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your Interests Attended To"

NEW YORK SALESROOMS
132 WEST 42ND ST.

Sold to Insecto Inc.,
33 W. 46th St.,
New York, N.Y.

Ent.
Acct.C.

Terms: 2/10 N/30
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 30, 1925.

SHIPPED TO VIA Bush truck.

8200	Crown openers, decoration as had A/C Contract 4/25/24. Case #5322/1	$6.00	49	20	
19500	Insecto B crowns with Tin Foil Your own goods. Case #12. F.O.B. destination.	$1.15	22	43	
				$71	63

MAY 1 1925

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

935

1178

CABLE Address "HANTUS" New York
TELEPHONE Connection

FERDINAND GUTMANN & CO.

"Your Interests Interest Us"

NEW YORK SALESROOMS
103 WEST 43rd ST.

Referred To .....
Approved By .....
Credit O.K. .....
Acct. Charged .....

Sold to Insto Inc.,
53 West 46th Street,
New York City.

6-1925

Net cash 10 days.
Terms:
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. May 15,1925.

SHIPPED TO VIA Bush truck. 1

25000	Special decoration "A" Crowns M 2.50	62	50		
	Natural cork discs, no tin center. 1 case #1.				
25000	Special decoration "B" Crowns M 3.65	91	25		
	Tin center- paraffine coated. 1 case #51.			153	75
	Special alloy tin foil is to be used.				
	F.O.B. delivered.				
	ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE. All claims must be made within five days from receipt of Goods.				4/5

4603

936

1179

CABLE ADDRESS "HAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your Interests Our Interest Too"

NEW YORK SALESROOMS
132 WEST 42nd ST.

MAY 20 1925

Sold to

Insecto, Inc.
33 W. 46th St.,
New York, N.Y.

Terms: Net 30 days.
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. May 18th 1925

SHIPPED TO		VIA Bush Truck			
75,000	Special Decoration "A" Crowns Natural Cork Discs - No tin center	@ 2.50	187	50	
	Cases #2/4 - 3 cases 25,000 each				
75,000	Special Decoration "B" Crowns Paraffine coated - Tin center	@ 3.65	273	75	
					461 25
	Cases #52/54 - 3 cases 25,000 each				
	F.O.B. Destination				

Referred To Miller
Approved By J. Gut
Extension O.K. E.A.
Acct. Charged

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

[fol. 1180] DEFENDANT'S EXHIBIT MM

Feb. 19, 1925.

Inecto, Inc., 35 W. 46th Street, New York City.

Attention Mr. Evans

DEAR MR. EVANS:

Confirming our personal conversation, I am, as per your request, putting our suggestions in writing with reference to crown contract.

Your contract, dated May 21st, 1924, called for ten million natural cork crowns, to be taken at the rate of 830,000 crowns per month, beginning July 21st, 1924. It was on this basis, which would have guaranteed us a continual running on our machine, that we made the low price of $1.89 per thousand base price on this contract. Our records show that, for the first six months, that is, up to January 22nd, 1925, you have taken only 1,725,650 caps. This has resulted in a serious disarrangement of our manufacturing plans, as well as a miscalculation as to our cost and profit on this order, as you can readily realize. This is due, firstly, to the fact that we have not been able to run steadily, as your requirements have been far below contracted quantity per month, and we did not want to make up all these goods as contracted for and dump them on you. Secondly, we have been under a considerable handicap and cost, as you know, due to the many experiments which we very gladly undertook in an effort to overcome your very difficult problems. Thirdly, we have been put to a very [fol. 1181] considerable expense in the necessary changes of machinery required for the above purposes.

In view of these facts, and in an endeavor to be perfectly fair with your very esteemed firm, and at the same time, fair to ourselves, it is our suggestion that without reference to the shipments already made and delivered, the balance of your contract be billed at a base price of $2.50 per thousand, to be taken as needed, but not less than 300,000 per month (instead of the 830,000 originally contracted for) and that on this basis, the price should be $2.50 per thousand base. To this must of course be added the price of $1.80 per thousand, which, as you know, is

the cost of running a crown through a second time for the purpose of affixing the specially prepared tin foil and special quality Gutta Percha covered with paraffin.

I sincerely trust that you will not misinterpret this request, as you know that up to the present time we have very willingly co-operated without question of finances being involved at all, but it is quite evident that the original quantity will be far in excess of your requirements, and in justice to yourselves, as well as to us, I am bringing this matter up at this time. May I ask that it receive your usual courteous and careful attention?

Very truly yours, Ferdinand Gutmann & Co.

JG:DG.

[fol. 1182] DEFENDANT'S EXHIBIT NN

(Letterhead of)

Bishop Gutta-Percha Co.

New York, January 6th, 1925.

Ferdinand Gutmann & Company, Bush Terminal Bldg #19, Brooklyn, N. Y.

Att. Mr. Cohn

GENTLEMEN:

As per your request we are pleased to confirm prices given over Phone this morning.

9/10 Brown in bolt or on rolls 36" wide $.85 per lb.
" " on spools 1" or wider, 1 lb. on a spool $.95 per lb.
" " on spools 1" or ¾", ½ lb. on a Spool $1.05 per lb.
" Surgical in bolt or on rolls 36" wide $2.00 per lb.
" " on small rolls 6" or wider $2.50 per lb.

These prices are all F. O. B. New York City.

If ordered in quantities of 50 pounds or more for shipment at one time we will allow you a discount 10% from the purchase price.

Very truly yours, Bishop Gutta-Percha Company,
A. C. Delanay, Sales Manager, per M. R.

1183
939

DEFENDANT'S EXHIBIT O O

BISHOP GUTTA-PERCHA CO.
INSULATED WIRE AND GUTTA-PERCHA GOODS
420 to 430 East 25th Street New York, N. Y.

DATE JAN 7 1925

SOLD TO
INVOICE
YOUR ORDER
YOUR REQ.

FERDINAND GUTMANN CO.
Bush Terminal Bldg. #19
Bklyn, N.Y.

6731
United States District Court
Eastern District of New York
Dft's Exhibit O O in evidence
Date Nov 6 31
Clerk
Deputy Clerk

INDIAN BRAND GUM TISSUE BACKING CLOTH

TERMS: Net 30 days, 2% 10 days end of month.

Invoice 5687-1
Cust. No.

4-lbs.	9/10	36"	Bolt Surgical Tissue @ 2.00 lb. Net	8.00	
5#	lb. net for cutting			.20	8.20

Dall F.O.B. NY

POSITIVELY NO CASH
DISCOUNT ALLOWED
FEB 10 1925

199/3

NO DISCOUNT ALLOWED AFTER

DEFENDANT'S EXHIBIT P P

BISHOP GUTTA-PERCHA CO.
INSULATED WIRE AND GUTTA-PERCHA GOODS
420 to 430 East 25th Street, New York, N. Y.

DATE DEC 31 25

SOLD TO
INVOICE
YOUR ORDER
YOUR REQ.

PERDINAND GUTTMANN
19 Bush Terminal
Bklyn, N.Y.

INDIAN BRAND GUM TISSUE BACKING CLOTH

Invoice 5593-1

½-sq	yd	9/10	I.B. Tissue	
½-sq	yd	ditto		No charge

F.O.B. NY

6731
United States District Court
Eastern District of New York
Dft's Exhibit P. P in evidence
Date Nov 6 31
Clerk
Deputy Clerk

NO DISCOUNT ALLOWED AFTER

1184 940

DEFENDANT'S EXHIBIT Q Q

BISHOP QUTTA-PEROHA CO.
INSULATED WIRE AND QUTTA-PEROHA GOODS
420 to 430 East 25th Street, New York, N. Y.

SOLD TO
INVOICE
YOUR ORDER
YOUR REF.

FERDINAND GUTMANN
Bush Terminal Bldg #19
Bklyn, N.Y.

INDIAN BRAND BACKING CLOTH GUM TISSUE

TERMS: Net 30 days, 2% 10 days end of month.

Invoice 6299-1
Cust. No. Phone

10½-lbs.	9/10	Roller	Surgical Tissue @ 2.50 lb. ---5%	24.35

CALL F.O.B. NY

United States District Court
Eastern District of New York
Ptf's Exhibit Q Q in evidence
Date 1931
Clerk
Deputy Clerk

206
2
1913

1711
FEB 9 1925
61109

POSITIVELY NO CASH DISCOUNT ALLOWED
AFTER FEB 10 1925

NO DISCOUNT ALLOWED AFTER _____

DEFENDANT'S EXHIBIT R R

BISHOP QUTTA-PEROHA CO.
INSULATED WIRE AND QUTTA-PEROHA GOODS
420 to 430 East 25th Street, New York, N. Y.

DATE [illegible] 1925

SOLD TO
INVOICE
YOUR ORDER
YOUR REF.

FERDINAND GUTMANN CO.
Bush Terminal Bldg. #19
Bklyn, N.Y.

t 2371
United States District Court
Eastern District of New York
Ptf's Exhibit R R in evidence
Date 1931
Clerk
Deputy Clerk

INDIAN BRAND BACKING CLOTH GUM TISSUE

TERMS: Net 30 days, 2% 10 days end of month.

Invoice 6560-1
Cust. No. Mr John

21-lbs.	9/10	Roller Surgical Tissue @ 2.50 lb. ---5%		49.87

F.O.B. NY

Post
ENTER
ENTERED 1711
PAID FEB 9 1925
CHECK No. 61109

215
10
cwm

POSITIVELY NO CASH DISCOUNT ALLOWED
AFTER FEB 10 1925

NO DISCOUNT ALLOWED AFTER _____

BLANK

PAGE

BLANK

PAGE

1185
941

DEFENDANT'S EXHIBIT S S

BISHOP GUTTA-PERCHA CO.
INSULATED WIRE AND GUTTA-PERCHA GOODS
420 to 430 East 25th Street, New York, N. Y.

DATE FEB 11 1925

SOLD TO
INVOICE
YOUR ORDER
YOUR REQ.

FERDINAND GUTMANN CO.
Bush Terminal Bldg. #19
Brklyn, N.Y.

United States District Court
Eastern District of New York
Exhibit SS in evidence
Date

BACKING CLOTH INDIAN BRAID GUM TISSUE

TERMS Net 30 days. 2% 10 days end of month.

Deputy Clerk

Invoice 6792-1
Cust. No. Phone

9½ lbs. 9/10 Bolt Surgical Tissue cut 12" wide
@ 2.00 lb. Net 19.00
5% lb. net for cutting .49 19.99

Call F.O.B. NY

Deduct credit 4/13/25 5 lbs returned Qy Ck

POSITIVELY NO CASH DISCOUNT ALLOWED
AFTER MAR 10 1925

227
2
C223

$19.3

NO DISCOUNT ALLOWED AFTER

BISHOP GUTTA-PERCHA CO. DATE

INSULATED WIRE AND GUTTA-PERCHA GOODS
420 TO 430 EAST 25TH STREET, NEW YORK

INVOICE
YOUR ORDER
YOUR REQ.

Ferdinand Gutmann Co.,
19 Bush Terminal,
Bklyn. N.Y.

BACKING CLOTH INDIAN BRAID GUM TISSUE

8420

2/10/25.

Mdse. returned.

11.87

5 lbs. 12 Roller Surg. Tissue returned @ 2.50
Less 5%

REC'D
POST
LATER
ENTERED SCB 6 BYK
PAID 61143

CREDIT MEMO.

BLANK

PAGE

1186

942

DEFENDANT'S EXHIBIT T T

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE MAR 23 1928

SOLD TO FERDINAND GUTMAN CO.,
168-39th Street,
Bklyn, N.Y.
Bush Terminal #19.

United States District Court
Eastern District of New York
Exhibit T T in evidence
Date

Clerk
Deputy Clerk

BACKING CLOTH INDIAN BRAND GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 7061-1

YOUR ORDER none — 1# 1" 'L' Spooled Indian Brand Tissue @ 1.25 lb. net — 1.25

YOUR REQ.

FOB NY VIA CALL

RECD
PRICE
ENTERED — 1.09.
PAID — APR 4-1928.
CHECK NO

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER APR 10 1928

TERMS: NET 30 DAYS, 2% 10 DAYS END OF MONTH. EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE JUL 7 1928

SOLD TO FERDINAND GUTMAN CO.,
168-39th St., Bush Terminal #19
Bklyn, N.Y.

BACKING CLOTH INDIAN BRAND GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 7661-1

YOUR ORDER — 2# 1" Spooled I.B.Tissue @ 1.25 lb-10% — 2.25

YOUR REQ.

FOB NY

RECD
PRICE
ENTERED — 1.32
PAID — AUG 7-1928
CHECK NO 95645

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER AUG 10 1928

TERMS: NET 30 DAYS, 2% 10 DAYS END OF MONTH EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER

943

1187

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE 8 7bl 21 1928

SOLD TO FERDINAND GUTMAN CO.,
168-39th St., Bush Terminal #19.
Bklyn, N.Y.

INDIAN BACKING CLOTH BRAND GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 7661-1

YOUR ORDER

YOUR REQ.

10# 1" Spooled I.B.Tissue @ 1.25 Lb-10%	11.25	
Postage	.25	11.50

FOB NY VIA P.P.INS.

RECD 10/2 54/98

PRICE

CHECK

ENTERED 8/2

PAID AUG 7 1928

CABLE 0. 10645

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER AUG 10 1928

TERMS: NET 30 DAYS. 2% 10 DAYS END OF MONTH UNLESS OTHERWISE STATED WHICH ARE NET. NO DISCOUNT ALLOWED AFTER

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE JUL 28 1928

SOLD TO FERDINAND GUTMAN CO.,
168-39th Street,
Bush Terminal #19,
Bklyn, N.Y.

INDIAN BACKING CLOTH BRAND GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 7661-1

YOUR ORDER

YOUR REQ.

68# 1" Spooled I.B.Tissue @ 1.25 Lb-10%	76.50

FOB NY

RECD 28/1

PRICE

CHECK

ENTERED

PAID AUG 7 - 1928

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER AUG 10 1928

TERMS: NET 30 DAYS. 2% 10 DAYS END OF MONTH UNLESS OTHERWISE STATED WHICH ARE NET. NO DISCOUNT ALLOWED AFTER

BLANK

PAGE

BLANK

PAGE

944

1188

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE AUG 30 1928

SOLD TO

FERDINAND GUTMAN CO.,
168-39th St.,
Bush Terminal 19
Brklyn, N.Y.

INDIAN BRAND — BACKING CLOTH — GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE WAS MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 7661-4

YOUR ORDER

YOUR REQ.

100# 1" Spooled I.B.Tissue
@ 1.25 Lb-10% 112.50 ✓

F.O.B. NY

PRICED 30/5 39

CHECKED

EXTENDED

ENTERED SEP 12 1928

SHIPPED

INVOICE No. 75861

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER SEP 10 1928

TERMS: NET 30 DAYS, 2% 10 DAYS END OF MONTH EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE SEP 12 1928

SOLD TO

FERDINAND GUTMAN CO.,
168-39th St.,-Bush Terminal #19
Brklyn, N.Y.

INDIAN BRAND — BACKING CLOTH — GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE WAS MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 7661-1

YOUR ORDER

YOUR REQ.

25# 1" Spooled I.B.Tissue
for foil caps @ 1.25 Lb-10% 28.12 ✓

F.O.B. NY VIA CALL,

CALLED 24/5 39

PRICED

CHECKED

TESTED

EXTENDED OCT 5 1928

SHIPPED 76051

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER OCT 10 1928

TERMS: NET 30 DAYS, 2% 10 DAYS END OF MONTH. EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER

945

1189

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE SEP 13 1928

SOLD TO FERDINAND GUTMAN CO.,
168-39th St.-Bush Terminal #19
Bklyn, N.Y.

BACKING CLOTH INDIAN BRAND GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 7661-A2

YOUR ORDER

YOUR REQ.

10# 1" Spooled I.B.Tissue for foils caps @ 1.25 lb-10% 11.25

FOB NY

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER OCT 10 1928

1146
OCT 10 1928
96052

TERMS: NET 30 DAYS. 2% 10 DAYS END OF MONTH. EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE SEP 19 1928

SOLD TO FERDINAND GUTMAN COMPANY,
168-39th St.,
Brooklyn, N.Y.

BACKING CLOTH INDIAN BRAND GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 7661-7

YOUR ORDER

YOUR REQ.

25# 1" Spooled I.B. Tissue 1.25 lb.-10% 28.12

FOB NY

Bush Terminal #19.

POSITIVELY NO CASH DISCOUNT ALLOWED

1146
OCT 10 1928
96052

TERMS: NET 30 DAYS. 2% 10 DAYS END OF MONTH. EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER

946

1190

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE SEP 21 1928

SOLD TO FERDINAND GUTMAN COMPANY,
168-39th Street,
Brooklyn, N.Y.

BACKING CLOTH INDIAN BRAND GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1919

INVOICE 7661-7

YOUR ORDER 160# 1" Spooled I.B. Tissue @ 1.25 Lb.-10% 180.00

YOUR REQ.

FOB NY VIA CALL to Bush Terminal #19

80/44

1146

OCT 10 1928

16052

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER OCT 10 1928

TERMS: NET 30 DAYS, 2% 10 DAYS END OF MONTH, EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER .....

BISHOP GUTTA-PERCHA COMPANY

420 EAST 25TH STREET, NEW YORK, N. Y.

DATE SEP 26 1928

SOLD TO FERDINAND GUTMAN CO.,
168-39th Street,
Brooklyn, N, Y.
Bush Terminal #19

BACKING CLOTH INDIAN BRAND GUM TISSUE AND PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1919

INVOICE 7661

YOUR ORDER 100# 1" spooled INDIAN BRAND Tissue @1.25 1b-10% 112.50

YOUR REQ.

FOB NY

82/99

1146

OCT 10 1928

16052

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER OCT 10 1928

TERMS: 30 DAYS, 2% 10 DAYS END OF MONTH, EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER .....

947

1191

BISHOP GUTTA-PERCHA COMPANY

430 EAST 25TH STREET, NEW YORK, N. Y.

DATE SEP 27 1928

SOLD TO FERDINAND GUTTMAN COMPANY,
169 - 39th Street,
Bklyn, N.Y.

BACKING CLOTH
INDIAN BRAND
GUM TISSUE
AND
PURE RUBBER GUM SHEET

WE HEREBY GUARANTEE THAT THE MERCHANDISE COVERED BY THIS INVOICE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE FEDERAL CHILD LABOR ACT OF SEPTEMBER 1, 1916

INVOICE 8055-1 260# 1" Spooled I.B. Tissue for foil caps @ 1.25 Lb. -10% 292.50

YOUR ORDER Mr. Cohen

YOUR REF.

FOB NY VIA OUR TRUCK

85/43

14L
OCT 10 1928
16052

POSITIVELY NO CASH DISCOUNT ALLOWED AFTER OCT 10 1928

TERMS: NET 30 DAYS. 2% 10 DAYS END OF MONTH. EXCEPT CASES WHICH ARE NET. NO DISCOUNT ALLOWED AFTER.....

948

1192

DEFENDANT'S EXHIBIT U U.

TELEPHONE: TRIANGLE 0464

PETERS BROS. RUBBER CO., INC.

3RD GENERATION

MANUFACTURERS–CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH CONVERTERS

RUBBER CLOTHS

SKINS BACKED

SATINS RUBBERIZED—COMBINED

ALSO ST. LOUIS–TELEPHONE CENTRAL 3493

Filed in ... Exhibit U U in ...
Date ...

Clerk
Deputy Clerk

April 10, 1929

SOLD TO Ferdinand Gutman & Co.,
ADDRESS 39th St. & Second Ave.,
Brooklyn, N. Y.

SHIPPED VIA Truck

YOUR ORDER NO. TERMS NET CASH 30 DAYS 2/10

5	yds Brown Paper coated with Tissue 12/13 and cut into 1" strips @ 12½ yd.	.63

9183
APR 17 1929

ALL GOODS PROCESSED AT CUSTOMER'S RISK

BLANK

PAGE

949

1193

DEFENDANT'S EXHIBIT V V

TELEPHONE: TRIANGLE 0464

PETERS BROS. RUBBER CO., INC.
3RD GENERATION
MANUFACTURERS–CONVERTERS
160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH CONVERTERS
RUBBER CLOTHS
SKINS BACKED
SATINS RUBBERIZED–COMBINED

ALSO
ST. LOUIS–TELEPHONE CENTRAL 3483

United States District Court
Eastern District of New York
Exhibit V, V in evidence
Date
Clerk
Deputy Clerk

August 21, 1929.

SOLD TO Ferd. Gutman Co.
ADDRESS 39th St. & 2nd Ave.
New York City
SHIPPED VIA Our Mr. Pepere
YOUR ORDER NO.
TERMS NET CASH 30 DAYS 2/10

300	yds. 25" Aluminum coated & cut to 1" @ 11¢ yd.	33.00

8/4/29

Crowns merchandise

6.63

SEP 5 1929

ALL GOODS PROCESSED AT CUSTOMER'S RISK.

950

1194

TELEPHONE: TRIANGLE 0484

PETERS BROS. RUBBER CO., INC.

2ND GENERATION

MANUFACTURERS—CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH
CONVERTERS
RUBBER CLOTHS
SKINS BACKED
SATINS RUBBERIZED—COMBINED

ALSO
ST. LOUIS—TELEPHONE CENTRAL 3493

September 16, 1929.

SOLD TO Ferninand Gutman Co.,
ADDRESS 39th St. & 2nd Ave.,
Brooklyn, N. Y.

SHIPPED VIA Truck

YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

295	yds. Aluminum Coated & Cut	@ 11¢ yd.	32.45

Merchandise Allowance

RECD 158/99
PRICE OK JGF
CHKD
EXTENDED J.T.B.
DATE SEP 25 1929
VOU 8445

"IN THE ACKNOWLEDGEMENT OF CLAIMED SHORT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY DEFECTS IN THE PACKAGE WHEN ARE SHIPPED TO PERSONS."
ALL GOODS PURCHASED AT CUSTOMER'S RISK.

951

1195

TELEPHONE: TRIANGLE 0484

PETERS BROS. RUBBER CO., INC.

2ND GENERATION

MANUFACTURERS-CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK STICTUIT REG. U. S. PAT. OFF. 3C

DRY ADHESIVE-BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH

CONVERTING

RUBBER CLOTHS

SKINS BACKED

SATINS RUBBERIZED—COMBINED

November 1, 1929.

SOLD TO Ferdinand Gutman Co.,

ADDRESS 39th St. & 2nd Ave., Brooklyn, N. Y.

SHIPPED VIA Truck

YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

ALSO ST. LOUIS-TELEPHONE CENTRAL 3483

64572	1 roll --- 411 yds. 26½" Aluminum Cut into 26 rolls 248 yds. each 1" Wide " " 26 " 163 yds. each 1" Wide.	@ 11¢ yd.		45.21

RECD 1/2 29

PRICE

EXTEN.

ENTERED 7 23

PAID NOV 1 1 1929

CHECK No. 99 99

Gutman Crowns

"IN THE PURCHASE OR SALE OF PIECED GOODS WE WILL NOT BE RESPONSIBLE FOR SHRINKAGE CAUSED BY MATERIALS IN THE PIECES BEING USED OR ALLOWANCE TO BE MADE."

ALL GOODS PURCHASED AT CONVERTER'S RISK.

BLANK

PAGE

952

1196

DEFENDANT'S EXHIBIT W W

TEL. PHONE: TRIangle 0484

PETERS BROS. RUBBER CO., INC.

3rd GENERATION

MANUFACTURERS—CONVERTERS

180-188 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH CONVERTERS

RUBBER CLOTHS

SKINS BACKED

SATINS RUBBERIZED—COMBINED

ALSO ST. LOUIS—TELEPHONE CENTRAL 3483

United States District Court
Eastern District of New York
Exhibit W.W in evidence
Date
Clerk
Deputy Clerk

April 21, 1930.

SOLD TO F. Gutman & Co.,
ADDRESS 39th St. & 2nd Ave., B'klyn., N. Y.
SHIPPED VIA Truck
YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

35592	40	yds. 38" Oil Paper coated with Tissue & Cut 1" @ 14½¢ yd.	5.80

L.C.'D 184/3 44
PRICE
ENTER
INTERED 427
PAID MAY 2 - 1930
CHECK # 10387

"IN THE SUBSEQUENT HANDLING OF FABRICS SENT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY MATERIALS IN THE FABRICS WHICH ARE UNKNOWN TO OURSELVES."

ALL GOODS PROCESSED AT CUSTOMER'S RISK.

2559

9563

1197

TELEPHONE: TRIANGLE 0-4848

PETERS BROS. RUBBER CO., INC.

INCORPORATION

MANUFACTURERS-CONVERTERS

180-188 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH
CONVERTERS
RUBBER CLOTHS
SKINS BACKED
SATINS RUBBERIZED—COMBINED

May 10, 1930.

SOLD TO F. Outwin & Son,

ADDRESS South St. & Pond Ave.,
B'klyn., N. Y.

SHIPPED VIA Truck

YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

ALSO
ST. LOUIS-TELEPHONE CENTRAL 3493

00648	40	yds. Oil Paper Coated & Cut	@ 14½¢ yd.	5.80

PER 3.15/3

CHG

REC'D

ENTERED MAY 27 1930

PAID

CHECK # 10517

All Goods Purchased At Customer's Risk.

954

1198

TELEPHONE, TRIANGLE 0484

PETERS BROS. RUBBER CO., INC.

3RD GENERATION

MANUFACTURERS—CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRORY MARK

WHITE SHOE CLOTH

CONVERTERS

RUBBER CLOTHS

SKINS BACKED

BATINS RUBBERIZED—COMBINED

May 15,1930.

SOLD TO F. Gutman & Co.,

ADDRESS 39th St. & 2nd Ave., B'klyn., N. Y.

SHIPPED VIA Truck

YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

ALSO ST. LOUIS—TELEPHONE CENTRAL 3493

76862	75	yds. Oil Paper Coated & Cut 1" Rolls	@ 14½¢ yd.	10.88

DUE 2/9/33

PRICE

EXTEN

ENTERED 7277

PAID MAY 26 1930

CHECK NO 8454

"IN THE UNDERSIGNED DELIVERY OF FABRICS SENT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY MATERIALS IN THE FABRICS WHICH ARE CLAIMED TO PRODUCE."

ALL GOODS PROCESSED AT CUSTOMER'S RISK.

BLANK

PAGE

955

1199

DEFENDANT'S EXHIBIT X X

TELEPHONE: TRIANGLE 0664

6311
United States District Court
Eastern District of New York
Exhibit X X in evidence
Date MAY 31
Clerk
Deputy Clerk

PETERS BROS. RUBBER CO., INC.
2nd GENERATION
MANUFACTURERS-CONVERTERS
160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES
TRADE PEBRONY MARK
WHITE SHOE CLOTH
CONVERTERS
RUBBER CLOTHS
SKINS BACKED
SATINS RUBBERIZED—CONCEALED

May 25, 1929

SOLD TO Ferdinand Gutman,
ADDRESS 39th St. & 2nd Ave.,
Brooklyn, N. Y.
SHIPPED VIA Truck
YOUR ORDER NO.
TERMS NET CASH 30 DAYS 2/10
ALSO ST. LOUIS-TELEPHONE CENTRAL 3488

650	yds 17" Aluminum coated and cut to 1" @ 11½¢ yd.		74.75	
100	" " " " " " 1" @ 11½¢ yd.		11.50	
4	" Bond Paper coated with Formula @ 8¢ yd.		.32	
140	" Gutman Special Cloth coated with Formula @ 17¢		23.80	110.37

The bal. to be included in the cotton bill

Jewelers

Mats Expense .3~

REC'D 32/1 32/4 5 5
PAID
EXTEN
ENTERED
DATE JUN 6 1929
CHECK NO. 1195 79653

ALL GOODS PROCESSED AT CUSTOMER'S RISK.

BLANK

PAGE

956

1200

DEFENDANT'S EXHIBIT Y Y

TELEPHONE: TRIANGLE 0464

PETERS BROS. RUBBER CO., INC.

MANUFACTURERS-CONVERTERS
160-168 JOHN ST., BROOKLYN, N. Y.

STICTUIT

Dry Adhesive Backing Cloths and Tapes

PEBRONY

White Shoe Cloth
Converters
Rubber Cloths
Shoe Backed
Satins Rubberized—Combined

Also
St. Louis—Telephone Central 3483

United States District Court
Eastern District of New York
Exhibit Y.Y. in evidence
Date

Clerk
Deputy Clerk

January 15, 1930

SOLD TO Ferdinand Gutman & Co.,
ADDRESS 39th St. & 2nd. Ave.,
Brooklyn, N. Y.
SHIPPED VIA Truck
YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

32554	310	yds. 26" Aluminum coated and cut 1" @ 11¢ yd. Cut into 26 rolls 200 yds. each and 26 rolls 110 yds. each. Also 3 Aluminum shells.		34.10

REC'D 1/30/30
PRICE OK
ENTERED JAN 27 1930
PAID
CHECK No 19694

"IN THE PURCHASING-CONSUMING OF FABRICS SENT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY MATERIALS IN THE FABRICS WHICH ARE FURNISHED TO DESIGN."

ALL GOODS PROCESSED AT CUSTOMER'S RISK.

957

1201

TELEPHONE: TRIANGLE 0484

PETERS BROS. RUBBER CO., INC.

3RD GENERATION

MANUFACTURERS—CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH CONVERTERS

RUBBER CLOTHS

SKINS BACKED

SATINS RUBBERIZED—COMBINED

April 28, 1930

SOLD TO F. Gutman & Co.,
39th St. & 2nd Ave.,
ADDRESS B'klyn., N. Y.
SHIPPED VIA Truck

ALSO
ST. LOUIS—TELEPHONE CENTRAL 3493

YOUR ORDER NO. 740 TERMS NET CASH 30 DAYS 2/10

76332	2x480 y--~~480~~ yds. Aluminum coated with Tissue & Cut into 1" Strips	@ 10½ ¢ yd.	86.10

25/36 of 840 = 583 sq yds

1924 Tot

LYTEN
ENTERED 7274
PAID MAY 7 - 1930
CHECK 80422

"IN THE RUBBERIZING-COMBINING OF FABRICS SENT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY MATERIALS IN THE FABRICS WHICH ARE INJURIOUS TO RUBBER."

ALL GOODS PROCESSED AT CUSTOMER'S RISK.

958

1202

TELEPHONE TRIANGLE 1082–1083

PETERS BROS. RUBBER CO., INC.

3RD GENERATION

MANUFACTURERS–CONVERTERS

100-108 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH
CONVERTERS
RUBBER CLOTHS
SKIING BACKED
SATINS RUBBERIZED—COMBINED

ALSO
ST. LOUIS—TELEPHONE CENTRAL 3493
LYNN, MASS. " BREAKERS 4420

December 3, 1930

SOLD TO F. Gutman Co
ADDRESS 39th St & 2nd Ave
B'klyn., N. Y.
SHIPPED VIA Truck
YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

43274	410-400---819 yds Aluminum Coated & Cut	@ 10½¢ yd		83.03

64 91 69 5552 562.19

141/193

ENTERED 936 DEC 15 1930

CHECK 12623

OK

IN THE ACCEPTANCE OF PAPERS SENT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY MATERIALS IN THE PAPERS USED AND ACCEPTANCE TO BE GIVEN.

ALL GOODS PROCESSED AT CUSTOMER'S RISK.

BLANK

PAGE

959

DEFENDANT'S EXHIBIT Z Z 1203

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

PETERS BROS. RUBBER CO., INC.
2ND GENERATION

MANUFACTURERS—CONVERTERS

DRY ADHESIVE BACKING CLOTHS
HOT OR COLD PROCESS ADHESIVE TAPES
CONVERTERS
RUBBER CLOTHS
SKINS BACKED
SATINS RUBBERIZED—COMBINED

180-188 JOHN ST., BROOKLYN, N. Y.

TELEPHONE TRIANGLE 5-1087
5-1088
5-2933

MEMBER

United States District Court
Eastern District of New York
Exhibit ZZ in evidence
Date
Clerk

November 1, 1932.

SOLD TO Ferd. Gutman & Co.,
ADDRESS 39th St, & 2nd Ave.,
Brooklyn, N. Y.

SHIPPED VIA Truck

YOUR ORDER NO.

TERMS NET CASH 30 DAYS
PAYABLE IN NEW YORK FUNDS

2/10

ALSO
ST. LOUIS—TELEPHONE CENTRAL 3493
LYNN, MASS. BREAKERS 4420
WOLLASTON, MASS. GRANITE 2583J
CINCINNATI, OHIO MAIN 0029
MONTREAL, CAN. MARQUETTE 3142

B16848	37x110-36x115-296x100--37,810 yds 1"Varnish Paper @ 5.40 M		204.18

REC'D
MADE
EXTEN.
ENTERED
PAID
CHECK #

NOV 12 1932

"IN THE UNDERSIGNED GOODS OR PACKAGES SENT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY MATERIALS IN THE FABRICS WHICH ARE INJURIOUS TO RUBBER."
ALL GOODS PROCESSED AT CUSTOMER'S RISK.

960

1204

TELEPHONE: TRIANGLE 1082–1083

PETERS BROS. RUBBER CO., INC.

3rd GENERATION

MANUFACTURERS—CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH
CONVERTERS
RUBBER CLOTHS
SKINS BACKED
SATINS RUBBERIZED—COMBINED

ALSO
ST. LOUIS—TELEPHONE CENTRAL 3493
LYNN, MASS. " BREAKERS 4420

SOLD TO Ferdinand Gutman & Co

ADDRESS 39th St & 2nd Ave
B'klyn., N. Y.

SHIPPED VIA Truck

January 6, 1931

YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

43893	2x400	---800 yds Aluminum Coated with Tissue &	10½¢ yd	82.00	
43893	400	yds Aluminum Coated with Tissue & Cut &	10½¢ yd	41.00	123.00

PRICE
EXTEN.
ENTERED
PAID JAN 19 1931
CHECK No. 1241

IN THE SUBSEQUENT CONVERSION OF FABRICS SENT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY MATERIALS IN THE FABRICS WHICH ARE UNSUITABLE TO RUBBER.

ALL GOODS PROCESSED AT CONSIGNOR'S RISK

961

1205

TELEPHONE: TRIANGLE 5-1082
5-1083
5-2933

PETERS BROS. RUBBER CO., INC.

3RD GENERATION

MANUFACTURERS—CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY NAME

WHITE SHOE CLOTH
CONVERTERS
RUBBER CLOTHS
SKINS BACKED
SATINS RUBBERIZED—COMBINED

ALSO
ST. LOUIS—TELEPHONE CENTRAL 3493
LYNN, MASS. — BREAKER 4480

SERVICE
DON'T ABUSE IT
MEMBER

Sept. 24, 1931.

SOLD TO Ferdinand Gutman & Co
ADDRESS 39th St & 2nd Avenue
Brooklyn, N. Y.
SHIPPED VIA Truck
YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

52111	114	yds 19" Silver Tinfoil Coated & Cut	@ 10¼¢ yd	11.69

114
19
1026
114
364 6 6 6
31 6

REC'D 236/1 409
PRICE
EXTEN
ENTERED
PAID $11.4
CHECK No 34624

"IN THE RUBBERIZING-COATING OF FABRICS SENT TO US, WE CANNOT BE RESPONSIBLE FOR DAMAGE CAUSED BY MATERIALS IN THE FABRICS WHICH ARE SUSPICIOUS TO HEAT."
ALL GOODS PROCESSED AT CUSTOMER'S RISK.

9682

1206

TELEPHONING TELEGRAPHS

MEMBER

PETERS BROS. RUBBER CO., INC.

3RD GENERATION

MANUFACTURERS—CONVERTERS

180-188 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH
CONVERTERS
RUBBER CLOTHS
SKINS BACKED
SATINS RUBBERIZED—COMBINED

ALSO
ST. LOUIS—TELEPHONE CENTRAL 3493
LYNN, MASS. " BREAKERS 4420

October 15, 1931.

SOLD TO F. Gutman & Co
ADDRESS 80th St & 2nd Ave
Brooklyn, N. Y.
SHIPPED VIA Truck
YOUR ORDER NO.
TERMS NET CASH 30 DAYS 2/10

52440	RS	Rolls 170 yds each---5,907 yds 1" Yellow Varnish Paper Coated	@ 6.00 M	35.44	
52440	RT	Rolls 800 yds each---7,585 yds 1" Yellow Varnish Paper Coated	@ 6.00 M	45.51	80.95

REC'D 9/28/v 4oz
PREP
PRIN
ENTERED
PAID OCT 22 1931
CHECK No 4763

"IN THE PURCHASE AND HANDLING OF FABRICS SENT TO US, WE CANNOT BE RESPONSIBLE FOR DEFECTS CLAIMED AT DAYBREAK IN THE MORNING DEWS AND ALLOWANCE TO BE MADE."
ALL GOODS PROCESSED AT CUSTOMER'S RISK.

963

1207

DEFENDANT'S EXHIBIT A A A

T SPHONE: TRIANGLE 0484

PETERS BROS. RUBBER CO., INC.

2nd GENERATION

MANUFACTURERS—CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK STICTUIT REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH

CONVERTERS

RUBBER CLOTHS

SKINS BACKED

SATINS RUBBERIZED—COMBINED

ALSO

ST. LOUIS—TELEPHONE CENTRAL 3493

United States District Court
Eastern District of New York
Plaintiff's Exhibit A A A in evidence
Date 3/27/31
Clerk
Deputy Clerk

May 15, 1929

SOLD TO Ferdinand Gutman,
ADDRESS 39th St. & 2nd Ave.,
Brooklyn, N. Y.

SHIPPED VIA Truck

YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

480	yds Parchment Paper coated with Tissue @ 12½¢ yd. Cut in 1" strips.	52.50

PAGED 21,44
PRICED
EXTEN.
ENTERED MAY 22 1929
PAID
CHECK No. 11041

ALL GOODS PROCESSED AT CONSUMER'S RISK.

964

1263

TELEPHONE: TRIANGLE 0464

PETERS BROS. RUBBER CO., INC.

3RD GENERATION

MANUFACTURERS—CONVERTERS

160-168 JOHN ST., BROOKLYN, N. Y.

TRADE MARK
STICTUIT
REG. U. S. PAT. OFF.

DRY ADHESIVE BACKING CLOTHS AND TAPES

TRADE PEBRONY MARK

WHITE SHOE CLOTH CONVERTERS

RUBBER CLOTHS

SKINS BACKED

SATINS RUBBERIZED—COMBINED

ALSO

ST. LOUIS—TELEPHONE CENTRAL 3493

April 3, 1929

SOLD TO Ferdinand Gutman Co.,

ADDRESS 39th St. & Second Ave.,
Brooklyn, N. Y.

SHIPPED VIA Truck

YOUR ORDER NO.

TERMS NET CASH 30 DAYS 2/10

18	yds 41" Paper coated and cut to 1" @ 12½¢ yd.	2.25

REC'D APR 17 1929

ALL GOODS PROCESSED AT CUSTOMER'S RISK.

[fol. 1209] DEFENDANT'S EXHIBIT BBB

Agreement

This agreement entered into this 15th day of December, 1933, by and between Crown Cork & Seal Company, Inc., a corporation of New York, hereinafter termed first party and Peters Bros. Rubber Co., Inc., a corporation of New York, hereinafter termed second party, Witnesseth:

Whereas, first party is the owner of United States Letters Patent 1,899,782 granted February 28th, 1933, and

Whereas, second party desires to acquire the right to manufacture and sell adhesive coated paper and foil under said patent, and

Whereas, first party is willing to grant such right subject to the condition that material made under and in accordance with said patent for the center spotting of closure caps shall be sold by second party only to those licensed by first party to manufacture and sell caps including such material.

Now, Therefore, in consideration of Ten dollars ($10.00) by second party to the first party in hand paid, receipt of which is hereby mutually acknowledged, and in consideration of the mutual agreements herein set forth as well as other good and valuable consideration, the parties hereto agree as follows:

1. First party hereby grants to second party the non-exclusive right to manufacture coated paper and/or metal foil [fol. 1210] under United States Letters Patent 1,899,782, granted February 28th, 1933, provided that when such material shall be sold for the purpose of center spotting closure caps, the same shall be sold only to persons duly licensed by first party to manufacture and sell caps containing material of the character covered by said patent and also licensed under first party's patents numbers 1,339,066, granted May 4th, 1920; 1,788,260, granted January 6th, 1931; 1,867,637, granted July 19th, 1932; 1,899,783, granted February 28th, 1933 and 1,889,784, granted February 28th, 1933.

2. Second party covenants that material made and sold under this license shall not be sold to manufacturers of crown seals and/or for center spotting of crown seals, or other closures, except and unless the purchasers of such materials are duly licensed by first party under first party's Patent No. 1,899,782, granted February 28th, 1933 and

under the first party's patents mentioned in paragraph numbered (1) supra. By "center spot," as referred to in this agreement, is meant a facing disposed substantially centrally within a cap and of less diameter than the diameter of the inner surface which contacts with the top or lip of the vessel to which the cap is applied. By "center spotting" is meant the step of applying a center spot.

3. The aforesaid license is to run for the life of the said patent 1,899,782 unless sooner terminated. The said license shall be terminable by second party upon sixty (60) days notice in writing to the first party and upon termination of the license no estoppel shall exist against second party to contest said patent in any way because of second party's [fol. 1211] having entered into this license agreement. The license shall be terminable by first party only in the event second party shall fail to live up to the provisions of this agreement.

4. First party agrees that the license granted to second party under Paragraph (1) supra, shall also include the right to manufacture and/or sell gutta percha tissue, as such, to persons duly licensed by first party to manufacture materials of the character covered by Letters Patent No. 1,899,782, and it is mutually agreed that this right shall also be subject to the same restrictions set forth in Paragraphs (1) and (2) supra.

Crown Cork & Seal Company, Inc., First Party, by Frederick E. Fusting, Vice-President.

Attest: J. J. Nagle, Secretary. (Seal.)

City of Baltimore,

State of Maryland, ss:

On this 27th day of December, 1933, personally appeared before the undersigned, Frederick E. Fusting, Vice-President of the Crown Cork & Seal Company, one of the parties to the foregoing agreement, and he acknowledged that he [fol. 1212] executed the same as Vice-President of said Company in accordance with authority duly given him and for the purposes set forth.

Florence M. Heckroth, Notary Public. My Commission expires May 6, 1935. (Seal.)

Peters Bros. Rubber Co., Inc., Second Party, by George L. Peters, Pres. (Seal.)

Attest: R. M. Peters, Secretary. (Seal.)

County of Kings,
State of New York, ss:

On this 15th day of December, 1933, before the undersigned, a Notary Public, personally appeared George L. Peters to me known and known to me to be President of Peters Bros. Rubber Co., Inc., and he acknowledged that he executed the same as President of said Corporation in accordance with authority duly given him and for the purposes set forth.

Joseph E. Lieder, Notary Public. Queens Co. Clk's No. 1101, Reg. No. 350. Kings Co. Clk's No. 107, Reg. No. 4051. My Commission expires March 30, 1935. (Seal.)

BLANK

PAGE

968

1213

DEFENDANT'S EXHIBIT C C C

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the

Letters Patent of

Albin H. Warth, Assignor to
Crown Cork & Seal Company, Inc.,

Number 1,956,481, Granted April 24, 1934,

for

Improvement in Spot Crowns and Liner Materials Therefor.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this nineteenth day of September, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-ninth.

ATTEST:

Chief of Division.

Commissioner of Patents.

11—6006
U. S. GOVERNMENT PRINTING OFFICE: 1934

1214 969

1956481

NUMBER (Series of 1925) 676190

PATENT NO. 1933

DATED APR 24 1934

DIV. 62

(EX'R'S BOOK) 215 134-10

Name ALBIN H. BARTH,

Assignor to Crown Cork & Seal Company, Inc. of Baltimore, Md., a Corp. of New York

3598

of BALTIMORE, (Md.)

State of MARYLAND

Invention SPOT CROWN AND LINER MATERIAL THEREFOR

ORIGINAL	RENEWED
APPLICATION FILED COMPLETE JUNE 16, 1933	55 74 134 286
PARTS OF APPLICATION FILED: Petition, Specification, Oath, First Fee $30, / sheets Drawings, JUNE 16, 1933	
Examined and passed for Issue Mar 29, 1934	Reexam'd and passed for Issue, 193
WW Cochran Ex. Div. 63	Ex. Div.
Notice of Allowance MAR 29 1934, 1934	Notice of Allowance, 193
Final Fee $30 Mar 29, 1934	Final Fee, 193

Attorney CUSHMAN, DARBY & CUSHMAN AMERICAN SECURITY BLDG CITY.

Associate Attorney

No. of Claims Allowed 16 Print Claim 1 in O. G. Class 215 - 39

Title as Allowed

Spot Crown & Liner Material therefor. J.

Division of App., No. , filed , 19

970 1215

676190

MAIL DIVISION
JUN 16 33
U.S. PATENT OFFICE

JUN 16 33 7107R5 K - Check 30.00

PETITION

14760

TO THE COMMISSIONER OF PATENTS:

Your petitioner ALBIN H. WARTH, a citizen of the United States,

residing at Baltimore,

~~[illegible]~~ State of Maryland,

whose Post Office address is
c/o Crown Cork & Seal Co.,
Baltimore, Maryland

prays that Letters Patent may be granted to him for improvements in

SPOT CROWN & LINER MATERIAL THEREFOR,

as set forth in the annexed specification.

And he hereby appoints Arlon V. Cushman, John J. Darby and William M. Cushman (constituting the firm of Cushman, Darby & Cushman, Washington, D. C., Registration No. 7196) and each of them, his Attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Albin H. Warth
(Inventor's Full Name)

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN, that I, ALBIN H. WARTH, a citizen of the United States,

residing at Baltimore,

~~[illegible]~~ State of Maryland,

have invented certain new and useful improvements in

SPOT CROWN & LINER MATERIAL THEREFOR,

and I do hereby declare the following to be a full, clear and exact description of the invention, such as will enable others skilled in the art to which it appertains, to make and use the same:

971

1216

Bond.

The present invention relates to container closures and particularly to caps of the crown type which include a shell, a cushion liner affixed thereto, and a center spot facing of resistant material such as paper or metal foil bonded to the liner, by a stratum of liquid-resistant and thermo-plastic or heat-fusible adhesive. A closure of this type is described for example in my patent 1,899,783 granted February 28, 1933. With such a cap the spot is centered with respect to the liner disc and in use, the spot is interposed between the sealing lip of a container and the cushion liner, whereby the seal is enhanced and the contents are kept out of contact with the cushion material of the liner.

It is important (1) that the spot be maintained in this centered relationship and that the adhesive afford a secure and permanent bond to assure optimum sealing, and (2) that the adhesive stratum which is liquid-resistant be maintained continuous

and as a completely and impervious covering to cooperate with the spot facing and afford an additional barrier means to prevent contact of the contents with the material of the cushion liner. (5) 1a'

Insert 6' per a Def. 4/10/39

Thus, the liner material usually of cork or composition cork, rubber, rubber composition, cardboard or paper materials, i.e., granulated cork and a binder and occasionally has a tendency to shrink or contract, and may in some cases expand, while the cap is being aged in storage and during incidental handling prior to application to a container. This is particularly true with certain types of caps, for example, those containing composition cork, i.e. granulated cork and a binder, where per a it is desirable that the caps be stored for a period of four to six months before being shipped to the consumer, and during this curing period there occurs a partial shrinkage of the composition cork disc.

Therefore, if the adhesive employed has a tendency to contract or stiffen or dry out, i.e. lose its life or granulate, the continuous adhesive stratum is cracked and physical changes, such as shrinkage in the liner will cause the bond to fracture with consequent further disruption of the adhesive stratum. If the fracture is partial, the facing is loosened and shifted out of center. In many cases, the fracture is so complete that the facing actually falls off or completely separates. Where observable such defective caps are rejected and this is not only expensive from the material standpoint, but usually the entire lot must be again inspected with consequent loss of time.

If the adhesive bond has assumed a brittle state or become weakened and fragile, and the cap is applied to the container, the compression of the cork liner incident to the capping operation which causes it to bulge downwardly in the center, fractures the adhesive and allows the facing spot to shift substantially, and separate from the liner. Hence, the seal is

imperfect and the contents are afforded opportunity to contact with the liner disc. Moreover, since the adhesive layer is liquid-resistant as described in my aforesaid patent, this slippage and partial or complete separation of the facing and liner and breaking down of the adhesive stratum, destroys the waterproof barrier between the contents and the liner formed by such layer bonding material. That is to say, the stratum of adhesive coextensive with the facing affords an additional means to prevent the contact of the contents with the material of the liner disc. Since not infrequently, the liquid contents permeate the paper or foil if the facing is defective, any shifting or separation of the facing and disruption of the continuous bonding stratum therefore renders this interposed protecting layer ineffective, in that exposed unprotected areas of the cushion material are presented to the contents.

This same objection arises where the bond or adhesive of the cap impairs its life and becomes brittle or contracts and granulates in use upon the container. Mineral waters for example, and other liquids are often bottled under high gaseous pressures of 4 to 5 volumes of carbon dioxide and stored for a year or more. Should the protective adhesive layer tend to brittleness and contract or granulate or the internal pressure fractures the bond to loosen the spot, exposed portions of the area of the liner will be wetted by the contents, particularly where the same have permeated the material of the facing spot.

Hence, resultant wetting of the liner disc will occur due to displacement of the spot facing and contraction and fracture of the adhesive and waterproof barrier. This wetting or saturation of the liner will cause the same to warp or expand, and as the bulge increases, the break becomes intensified and finally the spot completely separates from the liner. With the breaking down

of the adhesive protecting layer, the seal is destroyed and contact of the contents with the liner which is generally to be avoided ensues. This produces off-flavors and discoloration, reducing the value of the sealed product.

The above objections and disadvantages are those encountered with caps wherein the facing is united to the cushion liner by conventional adhesives. Such adhesives as gutta percha composition or tissue, referred to in my above mentioned patent, are satisfactory, but do not entirely solve the several problems recited.

It is an object of the present invention to provide an improved cap including a facing adherently united thereto by an adhesive having substantially all of the advantages of gutta percha as described in my aforesaid patent and which ~~is furthermore an improvement thereover, in that the cap of this invention reduces the effects of the destructive forces attendant upon cap manufacture and use on containers and is less expensive than caps now being made.~~ overcomes the foregoing and other objections to a cap containing gutta percha as a uniting medium for the center shell

I have discovered that in order to meet the severe conditions mentioned above, the cap must include a facing secured to the cushion liner by a layer of thermo-plastic or heat-fusible adhesive which is (1) permanently plastic; (2) non-oxidizable and non-drying; and (3) firm at normal or room temperatures.

By permanently plastic, I mean that the adhesive has a longer life than conventional adhesives and is free from any tendency to dry out or granulate or assume a brittle state. That is, in a cap of the present invention, the adhesive exhibits an ability to remain plastic, as well as flexible, resilient and firm, for long periods of time under the various conditions surrounding its manufacture and use upon a container.

By non-oxidizable, I mean that the adhesive stratum is not affected by exposure to air or oxygen and oxygen compounds such as may be produced in a sealed container. This freedom from oxidization is directly traceable to the absence of any substantial amounts of oxygen reacting substances in the composition or drying oils such as tung oil or soya bean oil which tend to oxidize and thus contract or granulate to render the stratum brittle and fragile. While the absence of oils which have an extreme oxidizing tendency with a resultant brittling effect is emphasized, I do not mean to exclude the use of oils which do not have this effect. Oils may be divided into three classes, namely (a) oxidizing or drying oils, e. g. tung or linseed (raw Chinawood or raw linseed oil); (b) semi-oxidizing oils, e. g. processed rape seed oil, and (c) non-oxidizing oils, e. g. such as castor oil and fish oil. The use of the non-oxidizing oils and of small amounts combined therewith of semi-oxidizing oils with the amount being insufficient to have a marked brittling effect is not excluded.

By non-drying, I mean that the adhesive is free of substances which dry out themselves or accelerate drying and cause contraction and brittleness. Thus the absence of oxidizable and non-drying constituents favors the preservation of permanent plasticity for considerably longer periods than can be obtained with conventional bonding agents.

By firm, I mean that the adhesive, at normal room temperatures or temperatures somewhat above or below normal, is non-tacky and does not flow. It is, however, flexible and yielding or resilient, and is plastic, so that it does not fracture or crack. These qualities are important in preserving the necessary continuous liquid-resistant barrier in a cap, and insure that the bond as well as the protective adhesive will not break down where the cushion liner deforms.

In these particular respects, namely the permanently plastic, and non-oxidizable and non-drying characteristics and firmness, as just explained, of the union between the liner and facing spot, the cap of the present invention improves upon the conventional article, and in

addition, has all of the various advantages recited in my aforesaid patent.

The adhesive of the present invention is fusible at a relatively low temperature, water insoluble and acid-resisting, gas-resistant, forms a thin continuous, elastic and resilient coating or layer between the facing disc and the cushion liner.

The cap of the present invention is, therefore, an improvement over conventional caps, in that by reason of the permanent plasticity of the adhesive and its freedom from oxidization and drying and its firmness under temperature conditions usually encountered, the facing is held to the liner securely throughout its area and no opportunity is presented for objectionable slipping or separation of the facing or disintegration of the continuous barrier layer. Hence, the seal is maintained and opportunity for contact of the contents with the cushion material of the liner is reduced to a minimum.

Such conditions as shrinkage of the liner due to curing or storage, or bulging of the liner upon capping a container or upon becoming wetted do not impair the union between the facing and the liner, since the constant plastic nature of the adhesive and its incident flexibility and resilience compensate for these physical deformations without affecting the bond or the continuous protective barrier constituted by the adhesive stratum.

The cap of the present invention, furthermore, and of equal importance with the other advantageous characteristics, is capable of production at a considerable saving over the cost of producing conventional caps. This is due (1) to the use of less expensive adhesive; (2) to a shorter period of operation of affixing the spot to the cap and in producing the sheet or strip spot material, and (3) the spot material or the caps do not have to be stored or maintained or acted upon in a predetermined temperature controlled atmosphere or refrigerated, since the adhesive although heat sensitive and thermo-plastic, is, nevertheless, firm at normal or room temperatures and does not melt and flow or tend to dry when the temperatures are somewhat elevated above normal. The same advantageous condition is maintained at reduced temperatures.

The advantages of these factors with resultant saving in the cost of production are appreciable when it is understood that substantially 80 million gross of caps are produced yearly.

It is a further objection of present day spot crowns that when subjected to an indentation pressure near the edge, the spot lifts, i.e. the edge separates from the liner. Thus any pressure upon the spot near the edge thereof will act to loosen the same, producing an unreliable closure. Indentation pressures, of course, occur at the capping machine as well as in the hoppers of the crowning machine where the caps are subjected to agitation. Frequently also these indenting pressures are exerted during the handling of the caps. When the edge of the spot is turned up even to a slight extent, any sliding action of the flared skirt of another crown contacting with the spot will dislodge it, sometimes completely. As a result the spots are loosened or entirely separated and when the crown is applied to a container, the spot may drop into the container or often the spot having become separated the cap is applied without the spot. Either of these conditions will produce deterioration of the product being bottled and is especially true in connection with pressure beverages as well as beer. The cap having a spot united to the liner thereof by a permanently plastic varnish-like coating in accordance with the present invention, is resistant to these objectionable indenting pressures notwithstanding that the spot be repeatedly subjected to the same.

As is well understood, in the punching out of spots from ribbon or sheet material, there occurs considerable waste, possibly 40%. With the present material, and particularly in the case of metal foils such as tin or aluminum, this waste can be compacted or compressed and directly melted for producing secondary pig metal or may be melted down with other metals in the foundry for the manufacture of alloys such as Alloy 12. Stated again, the use of a foil having a plastic varnish coating increases by several hundred per cent the value of the recovery from the waste over present materials.

In connection with the avoidance of temperature controlled conditions or refrigeration, I have found that a container having a cap of the present invention applied thereto is capable of sterilization without injury to the spot facing or its adhesive bond to the liner. This is advantageous in that the cap can be used upon bottled goods which must be sterilized and the sterilization can take place with the cap on the container, thereby saving a considerable expense in operation.

Referring to the drawings:

Figure 1 represents a bottom plan view of the usual crown cap having the cushion liner and center spot applied thereto.

Figure 2 is a sectional view of the cap of Figure 1 and showing the use of a center spot of paper provided with a resistant surface coating.

Figure 3 is a sectional view of the cap of Figure 1 showing a metal foil facing.

Figure 4 is a view representative of a strip or sheet of the spot material comprising a layer of paper having a coating of varnish on its exposed surface and a layer of adhesive on its undersurface from which the spot of Figure 2 is formed by punching.

Figure 5 is a view representative of a sheet or strip of spot material comprising a layer of metal foil having a coating of adhesive on its undersufrace from which the spot of Figure 3 is formed by punching.

Figure 6 is a view of a spot after the same has been punched from the strip or sheet material of Figure 4.

Figure 7 is a sectional view of the spot of Figure 6.

Figure 8 is a view of the spot punched from the foil material of Figure 5, and

Figure 9 is a sectional view of Figure 8.

979

1221

Referring to the drawing, I have illustrated in Figure 1 an ordinary crown shell 10 having a top 11 and a crimped skirt 12.

Affixed to the shell in the usual manner as by a heat and/or pressure sensitive adhesive or lacquer 10' is a cushion disc or liner 13 of natural cork, cork composition, pasteboard, rubber or rubber composition, or any of the known materials.

A center spot 14 of less diameter than that of the cushion liner 13 is attached to the liner by means of a stratum of adhesive 15. This facing spot is of an area to engage the sealing lip of a container and prevent the contents of the container from contacting with the material of the liner 13.

While the invention is particularly concerned with center spot facings, as shown in Figure 1, it is also applicable to overall facings, that is facings which are coextensive with the area of the liner or disc.

The center spot 14 will comprise the usual spot material such as paper 16, as shown in Figure 2, or metal foil 17, as shown in Figure 3. In the case of paper, the spots 14 are made of express, Kraft rope or other tough qualities having a hard or high gloss finish and are preferably coated with an acid, alkali and oil and water-resistant varnish 18. In the case of the metal foil spot 17, this usually is aluminum or tin foil and its exposed surface is ordinarily not treated.

The undersurface of the spot is provided with a continuous stratum of the adhesive 15 by which the spot is united to the liner 13.

In Figure 4, I have shown a laminated strip or sheet of paper facing material comprising a continuous coextensive underlayer 15 of adhesive, an intermediate layer 16 of paper and a con-

tinuous coextensive surface layer 18 of varnish. In Figure 5, I have shown a strip or sheet of metal foil facing material, wherein the continuous and coextensive layer of adhesive is indicated at 15 and the foil at 17. It will be understood that the unitary laminated structure comprising a coextensive and continuous layer of adhesive facing material of paper and resilient varnish or foil, is fed to a suitable punching machine, as described in my aforesaid patent, from which the spots or overall facings are produced and applied to the cushion liner of the cap by heat and pressure.

Referring to Figure 6, I have shown a spot punched from the material of Figure 4 and in Figure 7, I have shown a section of the same showing the unitary character of the article. In Figure 8, I have illustrated a spot punched from the material of Figure 5 and in Figure 9 a section through the same.

The usual practice in the manufacture of caps of the type disclosed has been to employ gutta percha in tissue or composition form which is a heat-sensitive adhesive and which is rendered tacky by the action of heat at the spotting machine and while in this condition the spot is punched out and pressed into contact with the exposed surface of the liner 13 and united thereto by heat and pressure. Gutta percha, however, presents the several objections above mentioned which impair the utility of the cap.

Gutta percha is probably the most widely recognized and used of the various adhesives and cements and is quite satisfactory. The gutta percha is in the form, however, of an oxidizable composition and frequently in storage, as well as when used upon a container, oxidation and drying take place and the adhesive bond becomes brittle or granulates, so that the adherence of the spot to the liner is seriously reduced. So much so, in fact, that where

the caps are allowed to remain in storage or are being cured and the liner 13 expands or contracts, the relatively fragile bond is broken and disrupted and the spot is loosened, so that the cap cannot be used. This same condition occurs where the cap is used upon pressure beverages, since the bond becomes stiff or fragile and any inequalities which are produced in the liner as by capping or internal pressures or moisture act to affect the bond, so that the spot becomes loosened and the continuous stratum is disrupted whereupon the contents seep past the spot into contact with the cushion material. In some cases, this actually causes contamination of the product and where seepage exists, should a break in the bond have occurred, the bond is completely lost, since the soaking of the liner will produce a warping which the adhesive uniting the facing to the liner is incapable of compensating for.

I have found that with a cap of the center spot type wherein the center spot is united to the cushion layer, in the manner now to be described, that a permanent and continuous liquid-resistant bond is assured between the spot facing and the cushion layer and one which will not deteriorate in storage or become defective under the normal conditions of usage, i.e. is unaffected by deformation of the liner disc.

I employ as the adhesive 15 a composition having all of the advantages of gutta percha as set forth in my aforementioned patent, i.e. it is heat fusible at a relatively low temperature, water insoluble and acid-resistant, gas-resistant, elastic and resilient and forms a thin continuous coating or stratum. But additionally and, moreover, the present composition (1) is permanently plastic, (2) is non-drying and non-oxidizable and hence does not assume a brittle state, and (3) is firm, i.e. non-tacky and does not flow at normal room temperatures or somewhat elevated

temperatures or harder at reduced temperatures remaining within the limits usually encountered plastic, resilient and flexible. Gutta percha tends to soften and flow at but slightly raised temperatures and must often be refrigerated. On the other hand, the cap of this invention may be applied to a container and subjected to sterilization temperatures without injury.

The composition which I employ, i.e. a plastic varnish coating, is prepared as a flowable mass such as a paint or lacquer and is spread or sprayed upon the sheet or strip paper or foil surface, as desired. This composition comprises a resin, preferably a synthetic resin of the polyhedric alcohol-polybasic acid (Glyptal) type, or a "Rezyl" resin, or a "Vinylite" resin (vinyl acetate), a cellulose derivative, such as nitro-cellulose, and a plasticizer, such as the aliphatic tartrates and phosphates, and a solvent preferably an organic solvent having proper drying properties. These vinylite resins are usually polymers of vinyl acetate or vinyl chloride, or mixtures of vinyl acetate and the chloride. Vinyl acetate particularly can be combined well with soluble cottons (nitro-cellulose).

The resin is not limited to the glyptal or rezyl type, but should be one capable of dissolving the cellulose derivative and have a high coefficient of plasticity.

The resin or composition may be modified by adding thereto in small percentage, non-drying vegetable oils such as castor oil to increase the plasticity. Semi-drying or drying oils are not desirable as they undergo oxidation.

Any suitable cellulose derivative may be used and in addition to nitro-cellulose, I use cellulose acetate.

I have mentioned the particular plasticizers, but it will be understood that others equally capable of acting as a solvent for the nitro-cellulose are employed. In this connection, I prefer butyl tartrate. Also tricresylphosphate and phthallates such as dibutyl and amyl phthallates are employed. I also use methyl abietate with either ethyl or butyl alcohol. This latter is particularly useful for dissolving dammar and natural resins, as well as vinylite resins.

where rubber is desired as a constituent of the plastic varnish. I find that a plastic coating of rubber containing varnish is also useful as the adhesive.

The organic solvent preferably consists of toluol, ethyl acetate, which promotes quick drying, and denatured alcohol, but, of course, other solvents capable of dissolving the mixture may be employed. Butyl acetate and butyl alcohol may also be used in the solvent mixture. as well as benzol although it is not preferred. I do not wish to be limited with respect to the solvent employed, provided, it imparts to the adhesive material proper drying properties.

A preferred composition of the above ingredients is given below.

Synthetic resin	10%
Nitro-cellulose	14%
Plasticizer	6%
Toluol	27%
Ethyl acetate	33%
Denatured alcohol	10%

The solution is applied to the paper or foil by spreading or spraying and will dry at normal temperatures in about twenty minutes.

It is to be noted that the composition is devoid of oxidizing oils which would tend to make the finish or coating brittle. However, it is possible to combine with the synthetic resin the semi-oxidizing or non-oxidizing oils to make a suitable composition, and, therefore, I do not intend to exclude the use of oils of this character either in combination with the other ingredients or as a substitute for one or more of the ingredients mentioned above.

Instead of allowing the adhesive coating to assume a firm and plastic condition without positive heating and drying, I apply the solution to the paper or foil at a temperature of about 200°F and dry the coating at substantially the same temperature. This drying is accomplished in from one to two minutes at 200°F. and effects a considerable saving in time period of operation. It is

advisable to keep drying temperature below 350° even though time of drying is short. The drying cycles will naturally vary with the degree of air change, and the tendency is to shorten time of drying. There is formed a permanently plastic coextensive coating or layer, as shown in Figures 4 and 5, whereby spots of the structure shown in Figures 6 and 8 may be readily punched therefrom. The adhesive is applied to the cushion liner by the usual spotting machine and is heat-sensitive, whereby it is rendered fusible by the heating instrumentality of the spotting machine and immediately pressed into bonded relation with the exposed surface of the cushion liner. Thereupon, the adhesive assumes a firm and permanently plastic condition, whence it is compensatory for any physical changes which occur in the cushion liner and is neither broken nor strained, nor is its continuous, impermeable character disrupted by the expansion or contraction of the liner, so that the spot and liner are permanently connected throughout the area of their respective contact surfaces by a continuous protective barrier.

In view of this permanently plastic and firm connection between the facing and the liner disc, the caps may be manufactured and stored without fear of the spots loosening and may be applied to containers, particularly those of the pressure beverage type with assurance that the spot will not separate from the liner to either weaken the seal or permit the contents to contact with the liner material.

1230

Insert A5 (29)

14778

A 6-de 1-16-16

1 Claim:

1. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic waterproof and non-oxidizable adhesive firm and permanently plastic at normal temperatures.

2. A cap of the type including a shell, a cushion liner affixed to the shell and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic heat sensitive waterproof and non-oxidizable adhesive firm and permanently plastic at normal temperatures.

3. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive firm and permanently plastic at normal temperatures comprising a cellulose derivative, a synthetic resin, a plasticizer, and a solvent.

4. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive firm and permanently plastic at normal temperatures comprising a cellulose derivative, a synthetic resin which is a solvent for the cellulose derivative, a plasticizer and a solvent.

5. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive firm and permanently plastic at normal temperatures comprising a cellulose derivative, a synthetic resin, a plasticizer, which is a solvent for cellulose devirative, and a solvent.

ccc 18

6. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive permanently plastic and firm at normal temperatures comprising nitrocellulose, a synthetic resin, a plasticizer, and a solvent.

7. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive permanently plastic and firm at normal temperatures comprising a cellulose derivative, a synthetic resin of the glyptal type, a plasticizer, and a solvent.

8. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive permanently plastic and firm at normal temperatures comprising a cellulose derivative, a synthetic resin, a plasticizer consisting of one of a group of compounds selected from the aliphatic tartrates and phosphates, and a solvent.

9. A cap of the type including a shell, a cushion liner affixed to the shell and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive permanently plastic and firm at normal temperatures comprising nitrocellulose, a synthetic resin of the glyptal type, a plasticizer consisting of one of a group of compounds selected from the aliphatic tartrates and phosphates, and an organic solvent.

10. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive firm and permanently plastic at normal temperatures comprising a cellulose derivative, a resin, a plasticizer, and a solvent.

11. A cap of the type including a shell, a cushion liner affixed to the shell, and a resistant center spot facing, said facing united to the cushion liner by a stratum of thermoplastic non-oxidizable adhesive firm and permanently plastic at normal temperatures comprising a cellulose derivative, a resin which is a solvent for the cellulose derivative, a plasticizer and a solvent.

12. A center spot for a crown cap comprising a layer of resistant facing material and a co-extensive layer of thermoplastic waterproof non-oxidizable adhesive permanently plastic and firm at normal temperatures.

13. A center spot for a crown cap layer of resistant facing material and a co-extensive layer of thermoplastic, heat sensitive, waterproof and non-oxidizable adhesive permanently plastic and firm at normal temperatures, said adhesive comprising a synthetic resin, a cellulose derivative, a plasticizer, and a solvent.

14. A liner for caps which includes a shell, comprising a layer of suchion material and a layer of resistant facing material, said facing material united to said cushion layer by a layer coextensive with the facing of thermoplastic, waterproof, non-oxidizable adhesive permanently plastic and firm at normal temperatures.

15. A liner for caps which includes a shell, comprising a layer of cushion material and a co-extensive layer of resistant facing material, said facing material united to said cushion layer by a layer co-extensive with the facing of thermo-plastic, water-proof, non-oxidizable adhesive permanently plastic and firm at normal temperatures, said adhesive comprising a synthetic resin, a cellulose derivative, a plasticizer, and a solvent.

989

1234

IN TESTIMONY WHEREOF I affix my signature.

Albin H. Warth (L.S.)
(Inventor's Full Name)

OATH

STATE OF Maryland)
City
COUNTY OF Baltimore) ss.

I, ALBIN H. WARTH,

the above-named petitioner, being duly sworn, depose and say that I am a citizen of the United States, and a resident of Baltimore, Maryland and that I verily believe myself to be the original, first and sole inventor of the improvements in

SPOT CROWN & LINER MATERIAL THEREFOR,

described and claimed in the annexed specification; that I do not know and do not believe that the same was ever known or used before my invention or discovery thereof, or patented or described in any printed publication in any country before my invention or discovery thereof, or more than two years prior to this application or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvements has been filed by me or my representatives or assigns in any country foreign to the United States.

Albin H. Warth
(Inventor's Full Name)

Subscribed and sworn to before me this 2nd day of June 1933

(Notarial Seal)

Florence M. Decatur
(Signature of Notary Public)

Notary Public
(Official Character)

MY COMMISSION EXPIRES MAY 8, 1935

Note:
You must sign twice on this page - (1) above the oath - (2) at the end of the oath.

990

1235

676190 #2

14,848

481

Apr. 24

Print of drawing as originally filed.

Fig. 1.

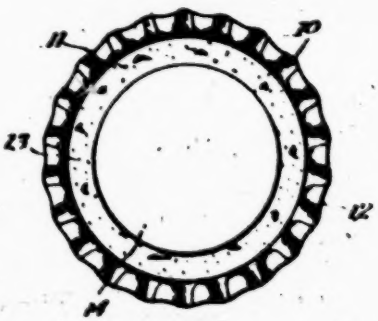


Fig. 2.

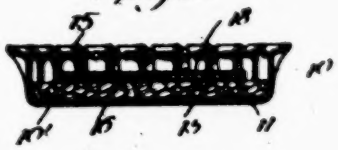


Fig. 3.

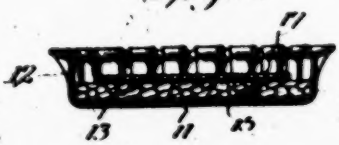


Fig. 4.

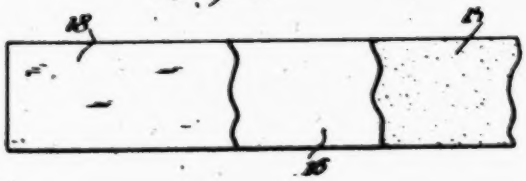


Fig. 5.

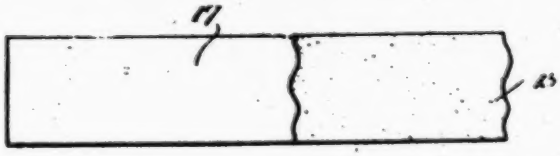


Fig. 6.

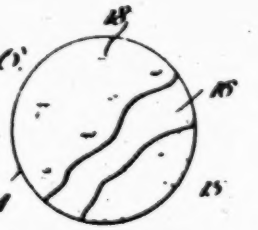


Fig. 7.



Fig. 8.

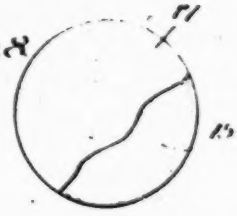


Fig. 9.



Inventor

Albin H. Wirth.

By Cushman, Darby & Cushman

Attorneys

991

1236

Div. 62 Room 3876 FWT:GB Paper No. 3

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications respecting this application should give the serial number, date of filing, and name of the applicant

Oct. 3, 1933.

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents.

Applicant; Albin H. Warth

Cushman, Darby & Cushman,
American Security Bldg.,
Washington, D. C.

Ser. No. 676190
Filed June 16, 1933
For Spot Crown and Liner Material Therefor.

MAILED
OCT - 3 1933

References made of record:

Alberti	1,199,026	Sept. 19, 1916	215-39 (69)
McManus	1,339,066	May 4, 1920	215-39 (84)
McManus	1,588,250	June 8, 1926	215-39 (95)
Warth	1,899,783	Feb. 28, 1933	215-39 (113)
Warth	1,901,682	Mar. 14, 1933	215-39 (117)

Claims 1 to 11 are rejected as drawn to the old combination of cap, liner and "spot". A change of the materials of these elements or the adhesive used to secure them together is deemed to amount to no more than a matter of choice. The above cited art, moreover, clearly suggests many materials. It is deemed to be obvious that any "suitable" material may be used. If applicant believes he has invented either an adhesive or other material he should claim it per se.

Claims 12 to 15 are similarly rejected as unpatentable over the patents to Warth and to McManus. No invention is seen in using any known adhesive (or any adhesive as soon as it becomes known) to secure the "spot of the McManus device or the Warth devices to their "cushion liner". No unobvious result arises due to the use of the specific adhesive. Applicant has chosen an adhesive with the qualities he believed best suited for the use to which it is put.

W.W. Cochran

Examiner.

FWT.

992

1237

PAPER No 4
AMENDMENT

11763 a

MAR 23 34
PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

SPOT CROWN & LINER MATERIAL THEREFOR,

Filed June 16, 1933,

Serial No. 676,190.

MAR 23 1934

Div. 62.

* *

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 2

Line 5, before "adhesive" insert --and thermo-plastic or heat-fusible--.

Page 3

Line 4, after the period insert --It is also desirable that the adhesive be heat-fusible or thermo-plastic, whereby the facing may be adhered to the cushion liner by the application of heat and pressure; for example, in accordance with the method described in my patent No. 1,788,260, granted January 6, 1931.--

Line 5, cancel the "comma" (second occurrence) and substitute --or--.

Line 6, before the "comma" (first occurrence) insert --i. e., granulated cork and a binder--

Same line (6) before "rubber" insert --and occasionally--.

Same line (6) after "materials" insert a "comma".

Line 11, after "binder" insert a "comma".

Page 5

Line 9, after the "period" insert the following:

"Among the difficulties which have arisen in connection with the use of caps employing a gutta percha adhesive to unite the center spot to the cushion liner are the following:

(1) Gutta percha in the presence of moisture or high heat, to which the caps are subjected in pasteurization and sterilization processes, tends to swell and to separate the facing from the cushion liner. This is particularly noticeable upon the removal of crown caps from beer and other beverages after the caps have been applied for an extended period of time, such as several months.

(2) Gutta percha has a comparatively greater adhesive affinity for cork (composition or natural) than for metal foil. This is particularly evident upon the removal of caps from bottles after they have been applied for an extended period. It is observed that the center spot facing either falls off or may be readily removed from the cork disc, leaving a distinct layer of gutta percha. Very little, if any, of the gutta percha adheres to the facing. This is so objectionable that bottlers of many products, including "White Rock" water, will not use center spot caps in which the foil is adhesively united to the cork liner with gutta percha.

(3). After application to a bottle for an extended period gutta percha tends to oxidize and lose its plasticity. Consequently, variation of the shape of the cushion liner, such as occurs under temperature and moisture changes during storage of the caps, tends to cause the facing to separate or fall from the cushion liner, due to the lack of plasticity in the gutta percha stratum. Crown caps are frequently stored in the manufacturing plant for months and are stored by the purchaser for an equal period before use. Hence, the desirability of an adhesive which is permanently plastic, or substantially so.

(4) In order to obtain a highly effective adhesion of gutta percha to metal foil, particularly in the warm weather, it is necessary to size the surface of the metal foil before applying the gutta percha. This involves a manufacturing step which it would be preferable to eliminate. The necessity for this pre-sizing becomes evident after the material has been in the cap for a considerable period.

Line 13, cancel "is furthermore etc." to the end of the sentence in line 17 and substitute --overcomes the foregoing and other objections to a cap containing gutta percha as a uniting medium for the center spot.--

Line 20, before "adhesive" insert --thermo-plastic or heat-fusible--.

Line 22, after the period insert:

--I have further discovered that these characteristics are obtainable by the use of an adhesive containing, as a base, a cellulose derivative adhesive, such as nitro-cellulose. Cellulose acetate may also be used. I have found it highly desirable to enhance the adhesive properties of the nitro-cellulose by the use of a modifying agent, and for this purpose I prefer a resin, and particularly a synthetic resin, as hereinafter set forth in detail. A suitable solvent and also a plasticizing medium may be used.--

Page 10

Line 19, change "15" to --14--.

Page 11

Line 21, before the period insert --by heat and pressure--.

Same line (21) after the period insert: --The usual procedure is in accordance with the method described in my patent No. 1,788,260, granted January 6, 1931.--

Line 29, cancel "to".

Page 13

Line 13, after "derivative" insert a "comma".

Same line (13) after "cellulose" cancel "and" and substitute a "comma".

Same line (13) after "plasticizer" insert a "comma".

Lines 24 and 25, change "desirous" to --desirable--.

Line 27, after the period insert the following:

The resin serves to modify and enhance the adhesive properties of the nitro-cellulose, and hence is a desirable modifying agent.

Page 15

Line 11, change "assumed" to --assumes--.

Last line, after the period insert the following:

I have discovered that by employing an adhesive of the character set forth, it is unnecessary to pre-size or treat the surface of the metal foil before applying the adhesive. Moreover, the adhesive stratum does not tend to swell when subjected to moisture and does not lose its adhesive properties throughout pasteurizing temperatures which may run as high as 185°F. Further, I have discovered that a stratum of this character has an adhesive affinity for metal foil, particularly, and also for other facings to substantially the same extent as for cork. This affinity becomes evident after extended use of a cap of this character. It is observed that there is virtually no tendency for the metal foil center to fall from or to readily separate from the cushion layer. Upon forced separation of the facing and cushion layer, a very large portion of the adhesive stratum adheres to the center spot facing and substantially to the same extent as to the cork.

Moreover, I have discovered a very unusual property, namely, that the mechanical pressure to which the facing and adhesive are subjected while the cap is positioned on the bottle improves or enhances the adherence of the center spot facing to the cork disc. In other words, actual tests have shown that, although center spot

caps containing a gutta percha stratum deteriorate from the date of manufacture, particularly after being applied to a bottle, so far as adhesion of the center spot to the cushion disc are concerned, the caps of my application actually improve and when examined after a period of use the spots are more firmly united to the cushion disc than when the caps are first manufactured. This continued improvement in the adhesion has been observed throughout periods of over a year and is a vital characteristic of this invention.

IN THE CLAIMS

Cancel the claims and substitute:

1. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive.

2. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative.

3. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base.

19. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base and a modifying agent enhancing the adhesive properties of the nitro-cellulose.

20. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive.

21. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative.

22. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base.

8. ~~25.~~ In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base and a modifying agent enhancing the adhesive properties of the nitro-cellulose.

9. ~~26.~~ In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

10. ~~25.~~ In a cap which includes a metal shell, a cushion liner of cork, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

11. ~~26.~~ In a cap which includes a metal shell, a cushion liner, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

12. ~~27.~~ In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

13 ~~28~~. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

14 ~~29~~. In a cap which includes a metal shell, a cushion liner of cork, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

15 ~~30~~. In a cap which includes a metal shell, a cushion liner, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

16 ~~31~~. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

a6

519

REMARKS

This application has been amended in the light of an interview kindly granted the applicant and his attorneys by the Primary Examiner.

The claims have been redrafted to modify their form. But the new claims are directed to the same subject matter, and are of substantially the same scope as the claims formerly of record.

a8

BLANK

PAGE

BLANK

PAGE

We submit herewith affidavits setting forth the technical results obtained by this invention, and it is believed that these affidavits clearly establish that the applicant has made a most valuable contribution to the art and has solved a problem which has confronted inventors in this art for many years.

Although nitro-cellulose adhesives are broadly old, the fact remains that no one, prior to the applicant, has discovered that they possess the properties necessary to overcome the objections to center spot caps which have been used for many years. The Examiner is, of course, aware of the difficulties which the beverage industry has experienced in connection with the use of the conventional center spot crown employing gutta percha as an adhesive for uniting the metal foil center spot to the cork disc or liner. These difficulties presented a problem which the entire cap industry has been striving in vain to work out. The applicant himself has been working with this problem for many years. Although he had available the experience of the Crown Cork & Seal Company, Inc., which is the largest manufacturer of closures in the world, it was only after many years of work that he succeeded. The solution may seem simple, since it involves primarily the use of a broadly old material. But the history of the art and the efforts of numerous inventors, including the applicant, to solve the problem, are certainly persuasive that there is invention involved.

The Courts have repeatedly held that novelty of selection is a sign of patentable invention. Applicant was the first to discover the great value of adhesives of the type described for uniting center spot facings to cushion discs, and particularly center spots of the metal foil type to cork discs. That the material used in accomplishing this result may have been broadly old, does not negative invention.

A question of this precise character was considered by the Circuit Court of Appeals of the Second Circuit in International Cork Co. vs. New Process Cork Co., 6 Fed. (2d) 420. In that case, the Court had before it the Alberti patent No. 1,234,711, which covered the use of a heat coagulated adhesive for retaining the cushion disc in a crown cap. Prior to the Alberti invention, it had been customary to use resin and waxes. But nobody had every used albumen or heat coagulative adhesive for this purpose. The Court in sustaining the selection of this broadly old adhesive for use in the crown cap industry as involving invention said (at 423):

> "The great volume of work and experimentation that was indulged in by men who were interested in this art, all laboring to meet this necessity, indicates the importance of the new idea which has resulted in the patents in suit. To the art it seems a forward step, and has succeeded in bringing about economy in manufacture, speed in production, and a cheaper product -- cheaper because of the ability to manufacture faster. The outstanding fact is that in all this experimentation of trained men, with some knowledge of egg or blood albumen, no one thought of its use as Alberti made use of it in the patents in suit. It is more than a mere substitution for a new use. Such a substitution, if it was one, was not evident to these experienced men."

We submit that it would be difficult to find a clearer authority for the allowance of the claims presented in this application than the decision of the Court in the case above cited. But in that case, the Court did not define new law. It was following clearly established precedent. For example, in George Frost Co. v. Cohn, 119 Fed. 505, 507, the Court of Appeals of the Second Circuit in sustaining a patent for a rubber button for a hose supporter said:

> "The instances of the prior use of such a material (rubber) do not necessarily suggest its adaptability to do the work required of a button in a hose or garment supporter more efficiently than one of metal. That its selection was not an obvious thing is persuasively and cogently

A'10

cc 4/04

shown by the fact that during many years numerous inventors were trying to remedy the defects in the old device, and it did not occur to them how simply and satisfactorily this could be done by making the button of rubber or some other elastic or yielding material. Its employment in the device of the patent was a new use, and imparted to the device a remarkable efficiency, as compared with that of the best type of former devices."

In Hartford v. Moore, 181 Fed. (C. C. S. D., N. Y.) 132, 134, the Court said:

"It certainly cannot be necessary to repeat the well-known principle that it is no indication of non-invention that the device should seem obvious after it has been discovered. Many great inventions are of this character, and the reason why the ordinary man does not discover them although they are so plain when some one else has done so is that habit has limited his power to see what he has not been accustomed to see, and his selective attention is fast bound by his past experience."

* * *

"Therefore a plausible argument may be made that the patent in suit is nothing but a new use for this old instrument without modification except that of size, which, of course, would be readily suggestible to any trained person. Yet, in spite of this similarity, I do not consider that it is a valid anticipation, because some one must have selected it for the purpose, and, as I have already said, novelty of selection is oftentimes a sure sign of patentable invention. The device in question was used to modify the action of a door spring. The question is whether the usual person with all the art before him would have thought of applying such a device in modifying the action of a spring on a vehicle. Here again when once the suggestion is made it is simple and obvious, but the problem before a person seeking to modify the action of a spring upon a vehicle is one which of itself does not suggest the problem of modifying the problem of the spring door."

In connection with the statement in this last case that "novelty of selection is oftentimes a sure sign of patentable invention", the decisions in Parnell v. Fitchburg Duck Mills, 207 Fed. 371 (C. C. D. Mass.), affirmed 214 Fed. 777, are of special interest here. For there the patentee, like Warth, had selected an old material for a new use and to perform new functions. And his patent was sustained. The opinions of both the

District Court and the Court of Appeals will be found to be of interest in their entirety.

There is no question that the Barth discovery has, as a practical matter, proved a most valuable contribution to the art. It makes no difference that its accomplishment now seems easy. For, as stated by the Court of Appeals of the Second Circuit in H. D. Smith & Co. v. Peck, Stow & Wilcox Co., 262 Fed. 415, 417:

> "Whether the structure involves invention is a question of fact, and the determining factor is not whether the achievement is difficult or easy, but whether it has, in point of fact, given the world something of real value, that it did not have - - a benefit conferred upon mankind."

Similarly the Supreme Court said in Eibel Process Co. v. Minnesota and Ontario Paper Co., 261 U. S. 45;

> "In administering the patent law, the court first looks into the art, to find what the real merit of the alleged discovery or invention is, and whether it has advanced the art substantially. If it has done so, then the court is liberal in its construction of the patent, to secure to the inventor the reward he deserves."

We think that, upon considering the affidavits filed, the Examiner will now concede that the results obtained by the applicant in employing an adhesive of the type defined are far from obvious. He has discovered latent and heretofore unrecognized qualities in such an adhesive, and the fact that this discovery is the result of years of effort, rather than a sudden thought, in no way detracts from the merit of the invention.

We have not overlooked the Examiner's suggestion that the claims should not be directed to the several parts of the cap, and further that if applicant has invented an adhesive he should claim the same as such. We submit that applicant's invention is not the adhesive, but a closure having the parts recited in

the claims. The exact objection raised by the Examiner was considered by the Court in International Cork Co. v. New Process Cork Co., supra. The defendants clearly established that the use of an albumen adhesive was broadly old, although perhaps not in the cap industry. The Court held further, however, that the claims defining the cap, as a whole, were valid and properly defined the invention. For example, claims 1 and 2 of the patent in suit read:

> "1. A closure for receptacles comprising a metallic cap, a sealing disk, and an interposed heat-coagulating cementing medium.
>
> 2. A closure for receptacles comprising a metallic cap, a sealing disk, and an interposed cementing medium coagulated and rendered insoluble by heat."

It is submitted that this decision is ample authority for the allowance of claims of the type here presented.

Respectfully,

Attorneys for Applicant.

JJD:U

1003

1250

APPLICATION DIV. MAR 23 34 U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

SPOT CROWN & LINER MATERIAL THEREFOR,

Filed June 16, 1933,

Serial No. 676,190. Div. 62.

* * *

CITY OF BALTIMORE)
:ss.
STATE OF MARYLAND)

ALBIN H. WARTH, whose application for Letters Patent for Improvements in Spot Crown & Liner Material Therefor, was filed June 16, 1933, Serial No. 676,190, being duly sworn, deposes and says that he has read the attached amendment and that the subject matter thereof was part of his invention, was invented before he filed his original application, above identified, for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, or in public use or on sale in this country for more than two years before the date of his application, and that the same has not been abandoned.

Albin H. Warth

Subscribed and sworn to before me, a Notary Public, this 22d day of March, 1934.

Florence M. Beckwith
Notary Public.

MY COMMISSION EXPIRES MAY 8, 1935

SEAL.

5001

APPLICATION FOR PATENT FILED
MAR 23 34
U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

SPOT CROWN & LINER MATERIAL THEREFOR,

Filed June 16, 1933,

Serial No. 676,190. Div. 62.

* * *

AFFIDAVIT OF ALBIN H. WARTH

CITY OF BALTIMORE)
:ss.
STATE OF MARYLAND)

ALBIN H. WARTH, being first duly sworn, deposes and says:

I am the applicant identified in the above entitled application.

For approximately seventeen (17) years I have been employed by the Crown Cork & Seal Company, Inc., and its predecessor, The Crown Cork & Seal Company of Baltimore City, and for the same period of time have been continuously engaged in technical work connected with the manufacture and development of caps, particularly caps of the "crown" type.

The invention of my application above identified relates primarily to the "crown" type of cap, and more particularly to that species of crowns known as "center spot" crowns, wherein a facing of less diameter than the cushion disc is adhesively united to the cushion disc or liner disposed within the metal shell.

I am the patentee identified in the following patents, all of which relate to caps of the center spot type:

1,788,260,	Warth	Jan. 6, 1931
1,899,783,	Warth	Feb. 28, 1933
1,899,784,	Warth	Feb. 28, 1933
1,867,637,	Warth	July 19, 1932.

For many years, the Crown Cork & Seal Company, Inc., and its predecessor have manufactured center spot caps in which the facing, whether of varnished paper or metal foil (aluminum and tin), has been united to the cushion liner by a stratum of gutta percha. These caps have been used for the bottling of beer and carbonated beverages, and well over fifty million gross have been manufactured and used commercially throughout the United States and foreign countries.

For some years, I have been engaged in the laboratory of the Crown Cork & Seal Company, Inc., of which I am in charge, with the problem of overcoming certain difficulties which have arisen in connection with the manufacture and use of caps employing gutta percha or a gutta percha compound to unite the center spot facing to the liner. These difficulties are pointed out generally in the specification of my above entitled application and may be briefly summarized as follows:

(1). Gutta percha in the presence of moisture or high heat, to which the caps are subjected in pasteurization and sterilization processes, tends to swell and to separate the facing from the cushion liner. This is particularly noticeable upon the removal of crown caps from beer and other beverages after the caps have been applied for an extended period of time, such as several months.

(2). Gutta percha has a comparatively greater adhesive affinity for cork (composition or natural) than for metal foil. This is particularly evident upon the removal of caps from bottles after they have been applied for an extended period. It is observed that the center spot facing either falls off or may be readily removed from the cork disc, leaving a distinct layer of gutta percha. Very little, if any, of the gutta percha adheres to the facing. This is so objectionable that bottlers of many pro-

ducts, including "White Rock" water, will not use center spot caps in which the foil is adhesively united to the cork liner with gutta percha.

(3). After application to a bottle for an extended period gutta percha tends to oxidize and lose its plasticity. Consequently, under variation of the shape of the cushion liner following loss of plasticity, such as occurs under temperature and moisture changes during storage of the caps, the facing tends to separate or fall from the cushion liner. Crown caps are frequently stored in the manufacturing plant for months and are stored by the purchaser for an equal period before use. Hence, the desirability of an adhesive which is permanently plastic, or substantially so.

(4). In order to obtain a highly effective adhesion of gutta percha to metal foil, particularly in the warm weather, it is necessary to size the surface of the metal foil before applying the gutta percha. This involves a manufacturing step which it would be preferable to eliminate. The necessity for this pre-sizing becomes evident after the material has been in the cap for a considerable period.

In my above entitled application, I have disclosed a development which has overcome the foregoing objections to center spot caps having the facing united to the cushion liner by gutta percha. I have discovered that by the use of an adhesive having a cellulose derivative base, e. g., nitro-cellulose, and particularly when the adhesive properties of the cellulose derivative are enhanced by a modifying agent, such as a resin, there is provided a product having the characteristics generally set forth in the specification of my application.

First, the adhesive layer stratum is permanently plastic or substantially so. Consequently, it adapts itself to any changes

in the shape or physical characteristics of the cork layer to which the adhesive unites the facing, and does so without losing its adhesion to either the cork or the facing.

Second, I have discovered that a stratum of this character has an adhesive affinity for metal foil and other facings to substantially the same extent as for cork. This is evident from extended use in center spot crowns, wherein it has been observed that there is virtually no tendency for the metal foil center spot to fall from or to be readily separable from the cushion layer. Upon separation of the facing and cushion layer, a very large portion of the adhesive stratum adheres to the center spot facing and substantially to the same extent as to the cork.

Third, it is unnecessary to pre-size or treat the surface of the metal foil, whether aluminum or tin, before applying the thermo-plastic or heat-fusible adhesive of this application.

Fourth, the new cap includes an adhesive stratum which does not vary in characteristics when subjected to moisture; it is non-swelling and does not lose its adhesive properties throughout pasteurizing temperatures, which may run as high as 185° F.

Fifth, I have discovered a very unusual property, namely, that the mechanical pressure to which the facing and adhesive are subjected while the cap is positioned on the bottle improves or enhances the adherence of the center spot facing to the cork disc. In other words, actual tests have shown that, although center spot caps containing a gutta percha stratum deteriorate from the date of manufacture, particularly after being applied to a bottle, so far as adhesion of the center spot to the cushion disc are concerned, the caps of my application actually improve and when examined after a period of use the spots are more firmly united to the cushion disc than when the caps are first manufactured. This continued improvement in the adhesion has been observed through-

out periods of over a year and is a vital characteristic of this invention.

The foregoing statements are based upon extended tests of caps made in accordance with the disclosure of my above identified application, and the results of these tests have had the attention of others in the employ of the Crown Cork & Seal Company, Inc., including my laboratory assistant, Miss Miriam Stover.

Further deponent sayeth not.

Wm H. Wirth

Subscribed and sworn to before me, a Notary Public, this 2nd day of March, 1934.

Florence L. Dickerson
Notary Public.

MY COMMISSION EXPIRES MAY 6, 1935

SEAL.

1256 1011

APPLICATION DIV. U.S. PATENT OFFICE
MAR 23 34

Albin H. Warth,

SPOT CROWN & LINER MATERIAL THEREFOR.

IN THE UNITED STATES PATENT OFFICE

Filed June 16, 1933,

Serial No. 676,190 Div. 62.

* * *

AFFIDAVIT OF MIRIAM STOVER

CITY OF BALTIMORE)
:ss.
STATE OF MARYLAND)

MIRIAM STOVER, being first duly sworn, deposes and says:

I am of legal age, and have been employed by the Crown Cork & Seal Company, Inc., and its predecessor, The Crown Cork & Seal Company of Baltimore City for over ten years.

Since May 1920 I have been an assistant in the laboratory of the Crown Cork & Seal Company, under Albin H. Warth.

I have read the above entitled application for patent, and am familiar with its disclosure. For some years, I have closely followed experiments conducted by the said Albin H. Warth in connection with the invention described in said application.

I have read the affidavit of Albin H. Warth, which is attached hereto and is dated the 22nd day of March, 1934. I know the statements therein contained are true from my own observation. I personally conducted many of the experiments referred to in said affidavit, and have examined and tested after extended periods of use caps made in accordance with the disclosure of said application for patent.

Further deponent sayeth not.

Miriam Stover

Subscribed and sworn to before me, a Notary Public, this 22d day of March, 1934.

Florence M. Heath
Notary Public.

MY COMMISSION EXPIRES MAY 6, 1935

1012

1257

Div. 62 - CB.

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

Serial No. 670190

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON March twenty-nine, 1934.

Albin H. Warth, Assor.

Your APPLICATION for a patent for an IMPROVEMENT in SPOT CROWN AND LINER MATERIAL THEREFOR filed June 16, 1933 has been examined and ALLOWED with 16 claims.

The final fee, THIRTY DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $30 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $30 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Commissioner of Patents.

Cushman, Darby & Cushman,
American Security Bldg.,
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

1013

MAR 29 34 1745 96 Check — 30.00

257

MAIL DIVISION
MAR 29 34
U.S. PATENT OFFICE

FINAL FEE PAID TO THE COMMISSIONER OF PATENTS

(Be careful to give correct Serial No.)

Serial No. 676,190

INVENTOR

Albin H. Warth

PATENT TO BE ISSUED TO

As per record

NAME OF INVENTION AS ALLOWED:

Spot Grown & Liner Material Therefor

DATE OF PAYMENT:

March 29, 1934

FEE:

$1

Final

DATE OF FILING:

June 16, 1933

DATE OF CIRCULAR OF ALLOWANCE:

Please Issue April 24, 1934

The Commissioner of Patents will please apply the accompanying fee as indicated above.

Cushman, Darby & Cushman

Attorneys.

SEND PATENT TO

Attorneys

Final fees will not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office, NOR WILL THEY BE APPLIED IN PENDING APPLICATIONS.

BLANK

PAGE

1014

April 24, 1934. A. H. WARTH 1,956,481

SPOT CROWN AND LINER MATERIAL THEREFOR

Filed June 16, 1933

Fig. 1.

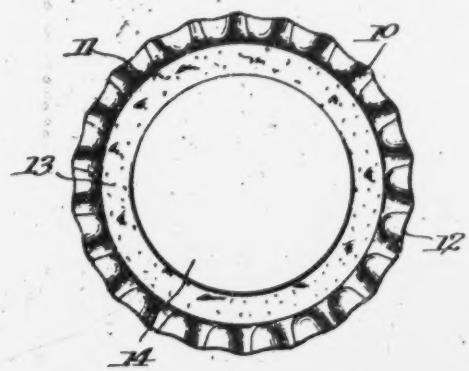


Fig. 2.

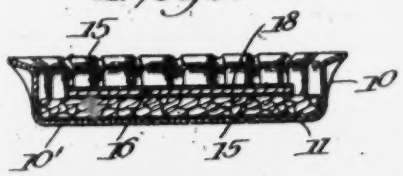


Fig. 3.



Fig. 4.

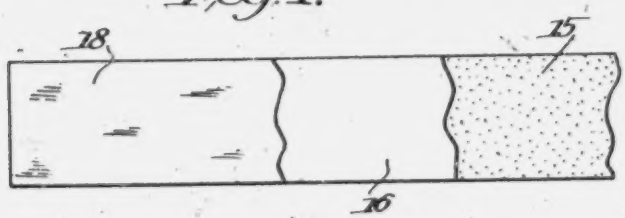


Fig. 5.

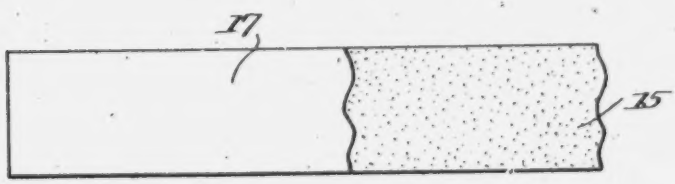


Fig. 6.

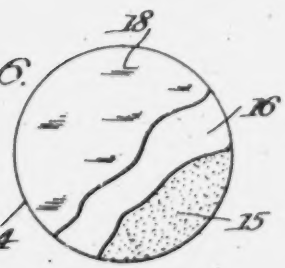


Fig. 8.

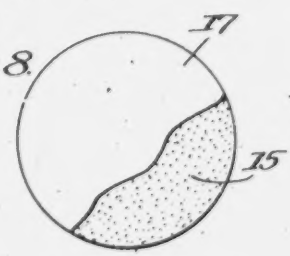


Fig. 7.

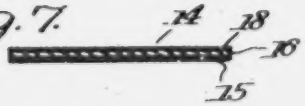
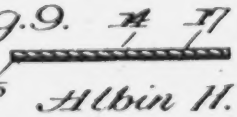


Fig. 9.



Inventor

Albin H. Warth.

By Cushman, Darby & Cushman

Attorneys

BLANK

PAGE

BLANK

PAGE

Patented Apr. 24, 1934

1,956,481

UNITED STATES PATENT OFFICE

1,956,481

SPOT CROWN AND LINER MATERIAL THEREFOR

Albin H. Warth, Baltimore, Md., assignor to Crown Cork & Seal Company, Inc., Baltimore, Md., a corporation of New York

Application June 16, 1933, Serial No. 676,190

16 Claims. (Cl. 215—39)

The present invention relates to container closures and particularly to caps of the crown type which include a shell, a cushion liner affixed thereto, and a center spot facing of resistant material such as paper or metal foil bonded to the liner, by a stratum of liquid-resistant and thermo-plastic or heat-fusible adhesive. A closure of this type is described for example in my Patent 1,899,783 granted February 28, 1933. With such a cap the spot is centered with respect to the liner disc and in use, the spot is interposed between the sealing lip of a container and the cushion liner, whereby the seal is enhanced and the contents are kept out of contact with the cushion material of the liner.

It is important (1) that the spot be maintained in this centered relationship and that the adhesive afford a secure and permanent bond to assure optimum sealing, and (2) that the adhesive stratum which is liquid-resistant be maintained continuous and as a completely and impervious covering to cooperate with the spot facing and afford an additional barrier means to prevent contact of the contents with the material of the cushion liner. It is also desirable that the adhesive be heat-fusible or thermoplastic, whereby the facing may be adhered to the cushion liner by the application of heat and pressure; for example, in accordance with the method described in my Patent No. 1,788,260, granted January 6, 1931.

Thus, the liner material usually of cork or composition cork, i. e., granulated cork and a binder, and occasionally rubber, rubber composition, cardboard or paper materials, has a tendency to shrink or contract, and may in some cases expand, while the cap is being aged in storage and during incidental handling prior to application to a container. This is particularly true with certain types of caps, for example. those containing composition cork, i. e. granulated cork and a binder, where it is desirable that the caps be stored for a period of four to six months before being shipped to the consumer, and during this curing period there occurs a partial shrinkage of the composition cork disc.

Therefore, if the adhesive employed has a tendency to contract or stiffen or dry out, i. e. lose its life or granulate, the continuous adhesive stratum is cracked and physical changes, such as shrinkage in the liner will cause the bond to fracture with consequent further disruption of the adhesive stratum. If the fracture is partial, the facing is loosened and shifted out of center. In many cases, the fracture is so complete that the facing actually falls off or completely separates. Where observable such defective caps are rejected and this is not only expensive from the material standpoint, but usually the entire lot must be again inspected with consequent loss of time.

If the adhesive bond has assumed a brittle state or become weakened and fragile, and the cap is applied to the container, the compression of the cork liner incident to the capping operation which causes it to bulge downwardly in the center, fractures the adhesive and allows the facing spot to shift substantially, and separate from the liner. Hence, the seal is imperfect and the contents are afforded opportunity to contact with the liner disc. Moreover, since the adhesive layer is liquid-resistant as described in my aforesaid patent, this slippage and partial or complete separation of the facing and liner and breaking down of the adhesive stratum, destroys the waterproof barrier between the contents and the liner formed by such layer bonding material. That is to say, the stratum of adhesive coextensive with the facing affords an additional means to prevent the contact of the contents with the material of the liner disc. Since not infrequently, the liquid contents permeate the paper or foil if the facing is defective, any shifting or separation of the facing and disruption of the continuous bonding stratum therefore renders this interposed protecting layer ineffective, in that exposed unprotected areas of the cushion material are presented to the contents.

This same objection arises where the bond or adhesive of the cap loses its life and becomes brittle or contracts and granulates in use upon the container. Mineral waters for example, and other liquids are often bottled under high gaseous pressures of 4½ to 6 volumes of carbon dioxide and stored for a year or more. Should the protective adhesive layer tend to brittleness and contract or granulate or the internal pressure fractures the bond to loosen the spot, exposed portions of the area of the liner will be wetted by the contents, particularly where the same have permeated the material of the facing spot.

Hence, resultant wetting of the liner disc will occur due to displacement of the spot facing and contraction and fracture of the adhesive and waterproof barrier. This wetting or saturation of the liner will cause the same to warp or expand, and as the bulge increases, the break becomes intensified and finally the spot completely separates from the liner. With the breaking down of the adhesive protecting layer, the seal

is destroyed and contact of the contents with the liner which is generally to be avoided ensues. This produces off-flavors and discoloration, reducing the value of the sealed product.

The above objections and disadvantages are those encountered with caps wherein the facing is united to the cushion liner by conventional adhesives. Such adhesives as gutta percha composition or tissue, referred to in my above mentioned patent, are satisfactory, but do not entirely solve the several problems recited. Among the difficulties which have arisen in connection with the use of caps employing a gutta percha adhesive to unite the center spot to the cushion liner are the following:

(1) Gutta percha in the presence of moisture or high heat, to which the caps are subjected in pasteurization and sterilization processes, tends to swell and to separate the facing from the cushion liner. This is particularly noticeable upon the removal of crown caps from beer and other beverages after the caps have been applied for an extended period of time, such as several months.

(2) Gutta percha has a comparatively greater adhesive affinity for cork (composition or natural) than for metal foil. This is particularly evident upon the removal of caps from bottles after they have been applied for an extended period. It is observed that the center spot facing either falls off or may be readily removed from the cork disc, leaving a distinct layer of gutta percha. Very little, if any, of the gutta percha adheres to the facing. This is so objectionable that bottlers of many products, including "White Rock" water, will not use center spot caps in which the foil is adhesively united to the cork liner with gutta percha.

(3) After application to a bottle for an extended period gutta percha tends to oxidize and lose its plasticity. Consequently, variation of the shape of the cushion liner, such as occurs under temperature and moisture changes during storage of the caps, tends to cause the facing to separate or fall from the cushion liner, due to the lack of plasticity in the gutta percha stratum. Crown caps are frequently stored in the manufacturing plant for months and are stored by the purchaser for an equal period before use. Hence, the desirability of an adhesive which is permanently plastic, or substantially so.

(4) In order to obtain a highly effective adhesion of gutta percha to metal foil, particularly in the warm weather, it is necessary to size the surface of the metal foil before applying the gutta percha. This involves a manufacturing step which it would be preferable to eliminate. The necessity for this pre-sizing becomes evident after the material has been in the cap for a considerable period.

It is an object of the present invention to provide an improved cap including a facing adherently united thereto by an adhesive having substantially all of the advantages of gutta percha as described in my aforesaid patent and which overcomes the foregoing and other objections to a cap containing gutta percha as a uniting medium for the center spot.

I have discovered that in order to meet the severe conditions mentioned above, the cap must include a facing secured to the cushion liner by a layer of thermo-plastic or heat-fusible adhesive which is (1) permanently plastic; (2) non-oxidizable and non-drying and (3) firm at normal or room temperatures. I have further discovered that these characteristics are obtainable by the use of an adhesive containing, as a base, a cellulose derivative adhesive, such as nitro-cellulose. Cellulose acetate may also be used. I have found it highly desirable to enhance the adhesive properties of the nitro-cellulose by the use of a modifying agent, and for this purpose I prefer a resin, and particularly a synthetic resin, as hereinafter set forth in detail. A suitable solvent and also a plasticizing medium may be used.

By permanently plastic, I mean that the adhesive has a longer life than conventional adhesives and is free from any tendency to dry out or granulate or assume a brittle state. That is, in a cap of the present invention, the adhesive exhibits an ability to remain plastic, as well as flexible, resilient and firm, for long periods of time under the various conditions surrounding its manufacture and use upon a container.

By non-oxidizable, I mean that the adhesive stratum is not effected by exposure to air or oxygen and oxygen compounds such as may be produced in a sealed container. This freedom from oxidization is directly traceable to the absence of any substantial amounts of oxygen reacting substances in the composition or drying oils such as tung oil or soya bean oil which tend to oxidize and thus contract or granulate to render the stratum brittle and fragile. While the absence of oils which have an extreme oxidizing tendency with a resultant brittling effect is emphasized, I do not mean to exclude the use of oils which do no have this effect. Oils may be divided into three classes, namely (*a*) oxidizing or drying oils, e. g. tung or linseed (raw Chinawood or raw linseed oil); (*b*) semi-oxidizing oils, e. g. processed rape seed oil, and (*c*) non-oxidizing oils, e. g. such as castor oil and fish oil. The use of the non-oxidizing oils and of small amounts combined therewith of semi-oxidizing oils with the amount being insufficient to have a marked brittling effect is not excluded.

By non-drying, I mean that the adhesive is free of substances which dry out themselves or accelerate drying and cause contraction and brittleness. Thus the absence of oxidizable and non-drying constituents favors the preservation of permanent plasticity for considerably longer periods than can be obtained with conventional bonding agents.

By firm, I mean that the adhesive, at normal room temperatures or temperatures somewhat above or below normal, is non-tacky and does not flow. It is, however, flexible and yielding or resilient, and is plastic, so that it does not fracture or crack. These qualities are important in preserving the necessary continuous liquid-resistant barrier in a cap, and insure that the bond as well as the protective adhesive will not break down where the cushion liner deforms.

In these particular respects, namely the permanently plastic, and non-oxidizable and non-drying characteristics and firmness, as just explained, of the union between the liner and facing spot, the cap of the present invention improves upon the conventional article, and in addition has all of the various advantages recited in my aforesaid patent.

The adhesive of the present invention is fusible at a relatively low temperature, water insoluble and acid-resisting, gas-resistant, forms a thin continuous, elastic and resilient coating or layer between the facing disc and the cushion liner.

The cap of the present invention is, therefore,

an improvement over conventional caps, in that by reason of the permanent plasticity of the adhesive and its freedom from oxidization and drying and its firmness under temperature conditions usually encountered, the facing is held to the liner securely throughout its area and no opportunity is presented for objectionable slipping or separation of the facing or disintegration of the continuous barrier layer. Hence, the seal is maintained and opportunity for contact of the contents with the cushion material of the liner is reduced to a minimum.

Such conditions as shrinkage of the liner due to curing or storage, or bulging of the liner upon capping a container or upon becoming wetted do not impair the union between the facing and the liner, since the constant plastic nature of the adhesive and its incident flexibility and resilience compensate for these physical deformations without affecting the bond or the continuous protective barrier constituted by the adhesive stratum.

The cap of the present invention, furthermore, and of equal importance with the other advantageous characteristics, is capable of production at a considerable saving over the cost of producing conventional caps. This is due (1) to the use of less expensive adhesive; (2) to a shorter period of operation of affixing the spot to the cap and in producing the sheet or strip spot material, and (3) the spot material or the caps do not have to be stored or maintained or acted upon in a predetermined temperature controlled atmosphere or refrigerated, since the adhesive although heat sensitive and thermo-plastic, is, nevertheless, firm at normal or room temperatures and does not melt and flow or tend to dry when the temperatures are somewhat elevated above normal. The same advantageous condition is maintained at reduced temperatures. The advantages of these factors with resultant saving in the cost of production are appreciable when it is understood that substantially 80 million gross of caps are produced yearly.

It is a further objection of present day spot crowns that when subjected to an indentation pressure near the edge, the spot lifts, i. e. the edge separates from the liner. Thus any pressure upon the spot near the edge thereof will act to loosen the same, producing an unreliable closure. Indentation pressures, of course, occur at the capping machine as well as in the hoppers of the crowning machine where the caps are subjected to agitation. Frequently also these indenting pressures are exerted during the handling of thhe caps. When the edge of the spot is turned up even to a slight extent, any sliding action of the flared skirt of another crown contacting with the spot will dislodge it, sometimes completely. As a result the spots are loosened or entirely separated and when the crown is applied to a container, the spot may drop into the container or often the spot having become separated the cap is applied without the spot. Either of these conditions will produce deterioration of the product being bottled and is especially true in connection with pressure beverages as well as beer. The cap having a spot united to the liner thereof by a permanently plastic varnish-like coating in accordance with the present invention, is resistant to these objectionable indenting pressures notwithstanding that the spot be repeatedly subjected to the same.

As is well understood, in the punching out of spots from ribbon or sheet material, there occurs considerable waste, possibly 40%. With the present material, and particularly in the case of metal foils such as tin or aluminum, this waste can be compacted or compressed and directly melted for producing secondary pig metal or may be melted down with other metals in the foundry for the manufacture of alloys such as Alloy 12. Stated again, the use of a foil having a plastic varnish coating increases by several hundred per cent the value of the recovery from the waste over present materials.

In connection with the avoidance of temperature controlled conditions or refrigeration, I have found that a container having a cap of the present invention applied thereto is capable of sterilization without injury to the spot facing or its adhesive bond to the liner. This is advantageous in that the cap can be used upon bottled goods which must be sterilized and the sterilization can take place with the cap on the container, thereby saving a considerable expense in operation.

Referring to the drawing:

Figure 1 represents a bottom plan view of the usual crown cap having the cushion liner and center spot applied thereto.

Figure 2 is a sectional view of the cap of Figure 1 and showing the use of a center spot of paper provided with a resistant surface coating.

Figure 3 is a sectional view of the cap of Figure 1 showing a metal foil facing.

Figure 4 is a view representative of a strip or sheet of the spot material comprising a layer of paper having a coating of varnish on its exposed surface and a layer of adhesive on its undersurface from which the spot of Figure 2 is formed by punching.

Figure 5 is a view representative of a sheet or strip of spot material comprising a layer of metal foil having a coating of adhesive on its undersurface from which the spot of Figure 3 is formed by punching.

Figure 6 is a view of a spot after the same has been punched from the strip or sheet material of Figure 4.

Figure 7 is a sectional view of the spot of Figure 6.

Figure 8 is a view of the spot punched from the foil material of Figure 5, and

Figure 9 is a sectional view of Figure 8.

Referring to the drawing, I have illustrated in Figure 1 an ordinary crown shell 10 having a top 11 and a crimped skirt 12.

Affixed to the shell in the usual manner as by a heat and/or pressure sensitive adhesive or lacquer 10' is a cushion disc or liner 13 of natural cork, cork composition, pasteboard, rubber or rubber composition, or any of the known materials.

A center spot 14 of less diameter than that of the cushion liner 13 is attached to the liner by means of a stratum of adhesive 15. This facing spot is of an area to engage the sealing lip of a container and prevent the contents of the container from contacting with the material of the liner 13.

While the invention is particularly concerned with center spot facings, as shown in Figure 1, it is also applicable to overall facings, that is facings which are coextensive with the area of the liner or disc.

The center spot 14 will comprise the usual spot material such as paper 16, as shown in Figure 2, or metal foil 17, as shown in Figure 3. In the case of paper, the spots 14 are made of express, Kraft rope or other tough qualities having a

hard or high gloss finish and are preferably coated with an acid, alkali and oil and water-resistant varnish 18. In the case of the metal foil spot 17, this usually is aluminum or tin foil and its exposed surface is ordinarily not treated.

The undersurface of the spot is provided with a continuous stratum of the adhesive 15 by which the spot is united to the liner 13.

In Figure 4, I have shown a laminated strip or sheet of paper facing material comprising a continuous coextensive underlayer 15 of adhesive, an intermediate layer 16 of paper and a continuous coextensive surface layer 18 of varnish. In Figure 5, I have shown a strip or sheet of metal foil facing material, wherein the continuous and coextensive layer of adhesive is indicated at 15 and the foil at 17. It will be understood that the unitary laminated structure comprising a coextensive and continuous layer of adhesive facing material of paper and resilient varnish or foil, is fed to a suitable punching machine, as described in my aforesaid patent, from which the spots or overall facings are produced and applied to the cushion liner of the cap by heat and pressure.

Referring to Figure 6, I have shown a spot punched from the material of Figure 4 and in Figure 7, I have shown a section of the same showing the unitary character of the article. In Figure 8, I have illustrated a spot punched from the material of Figure 5 and in Figure 9 a section through the same.

The usual practice in the manufacture of caps of the type disclosed has been to employ gutta percha in tissue or composition form which is a heat-sensitive adhesive and which is rendered tacky by the action of heat at the spotting machine and while in this condition the spot is punched out and pressed into contact with the exposed surface of the liner 13 and united thereto by heat and pressure. The usual procedure is in accordance with the method described in my Patent No. 1,788,260, granted January 6, 1931. Gutta percha, however, presents the several objections above mentioned which impair the utility of the cap.

Gutta percha is probably the most widely recognized and used of the various adhesives and cements and is quite satisfactory. The gutta percha is in the form, however, of an oxidizable composition and frequently in storage, as well as when used upon a container, oxidation and drying take place and the adhesive bond becomes brittle or granulates, so that the adherence of the spot to the liner is seriously reduced. So much so, in fact, that where the caps are allowed to remain in storage or are being cured and the liner 13 expands or contracts, the relatively fragile bond is broken and disrupted and the spot is loosened, so that the cap cannot be used. This same condition occurs where the cap is used upon pressure beverages, since the bond becomes stiff or fragile and any inequalities which are produced in the liner as by capping or internal pressures or moisture act to affect the bond, so that the spot becomes loosened and the continuous stratum is disrupted whereupon the contents seep past the spot into contact with the cushion material. In some cases, this actually causes contamination of the product and where seepage exists, should a break in the bond have occurred, the bond is completely lost, since the soaking of the liner will produce a warping which the adhesive uniting the facing to the liner is incapable of compensating for.

I have found that with a cap of the center spot type wherein the center spot is united to the cushion layer, in the manner now to be described, that a permanent and continuous liquid-resistant bond is assured between the spot facing and the cushion layer and one which will not deteriorate in storage or become defective under the normal conditions of usage, i. e. is unaffected by deformation of the liner disc.

I employ as the adhesive 15 a composition having all of the advantages of gutta percha as set forth in my aforementioned patent, i. e. it is heat fusible at a relatively low temperature, water insoluble and acid-resistant, gas-resistant, elastic and resilient and forms a thin continuous coating or stratum. But additionally and, moreover, the present composition (1) is permanently plastic, (2) is non-drying and non-oxidizable and hence does not assume a brittle state, and (3) is firm, i. e. non-tacky and does not flow at normal room temperatures or somewhat elevated temperatures or harder at reduced temperatures remaining within the limits usually encountered plastic, resilient and flexible. Gutta percha tends to soften and flow at but slightly raised temperatures and must often be refrigerated. On the other hand, the cap of this invention may be applied to a container and subjected to sterilization temperatures without injury.

The composition which I employ, i. e. a plastic varnish coating, is prepared as a flowable mass such as a paint or lacquer and is spread or sprayed upon the sheet or strip paper or foil surface, as desired. This composition comprises a resin, preferably a synthetic resin of the polyhedric alcohol-polybasic acid ("Glyptal") type, or a "Rezyl" resin, or a "Vinylite" resin (vinyl acetate), a cellulose derivative, such as nitro-cellulose, a plasticizer, such as the aliphatic tartrates and phosphates, and a solvent preferably an organic solvent having proper drying properties. These vinylite resins are usually polymers of vinyl acetate or vinyl chloride, or mixtures of vinyl acetate and the chloride. Vinyl acetate particularly can be combined well with soluble cottons (nitro-cellulose).

The resin is not limited to the glyptal or rezyl type, but should be one capable of dissolving the cellulose derivative and have a high coefficient of plasticity.

The resin or the composition may be modified by adding thereto in small percentage, non-drying vegetable oils such as castor oil to increase the plasticity. Semi-drying or drying oils are not desirable as they undergo oxidation.

Any suitable cellulose derivative may be used and in addition to nitro-cellulose, I use cellulose acetate.

The resin serves to modify and enhance the adhesive properties of the nitro-cellulose, and hence is a desirable modifying agent.

I have mentioned the particular plasticizers but it will be understood that others equally capable of acting as a solvent for the nitro-cellulose are employed. In this connection, I prefer butyl tartrate. Also tricresylphosphate and phthalates such as dibutyl and amyl phthalate are employed. I also use methyl abietate with either ethyl or butyl alcohol. This latter is particularly useful for dissolving dammer and natural resins, as well as vinylite resins, where rubber is desired as a constituent of the plastic var-

nish. I find that a plastic coating of rubber containing varnish is also useful as the adhesive.

The organic solvent preferably consists of toluol, ethyl acetate, which promotes quick drying, and denatured alcohol, but, of course, other solvents capable of dissolving the mixture may be employed. Butyl acetate and butyl alcohol may also be used in the solvent mixture, as well as benzol although it is not preferred. I do not wish to be limited with respect to the solvent employed, provided it imparts to the adhesive material proper drying properties.

A preferred composition of the above ingredients is given below.

	Per cent
Synthetic resin	10
Nitro-cellulose	14
Plasticizer	6
Toluol	27
Ethyl acetate	33
Denatured alcohol	10

The solution is applied to the paper or foil by spreading or spraying and will dry at normal temperatures in about twenty minutes.

It is to be noted that the composition is devoid of oxidizing oils which would tend to make the finish or coating brittle. However, it is possible to combine with the synthetic resin the semi-oxidizing or non-oxidizing oils to make a suitable composition, and, therefore, I do not intend to exclude the use of oils of this character either in combination with the other ingredients or as a substitute for one or more of the ingredients mentioned above.

Instead of allowing the adhesive coating to assume a firm and plastic condition without positive heating and drying, I apply the solution to the paper or foil at a temperature of about 200° F. and dry the coating at substantially the same temperature. This drying is accomplished in from one to two minutes at 200° F. and effects a considerable saving in time period of operation. It is advisable to keep drying temperature below 350° even though time of drying is short. The drying cycles will naturally vary with the degree of air change, and the tendency is to shorten time of drying. There is formed a permanently plastic coextensive coating or layer, as shown in Figures 4 and 5, whereby spots of the structure shown in Figures 6 and 8 may be readily punched therefrom. The adhesive is applied to the cushion liner by the usual spotting machine and is heat-sensitive, whereby it is rendered fusible by the heating instrumentality of the spotting machine and immediately pressed into bonded relation with the exposed surface of the cushion liner. Thereupon, the adhesive assumes a firm and permanently plastic condition, whence it is compensatory for any physical changes which occur in the cushion liner and is neither broken nor strained, nor is its continuous, impermeable character disrupted by the expansion or contraction of the liner, so that the spot and liner are permanently connected throughout the area of their respective contact surfaces by a continuous protective barrier.

In view of this permanently plastic and firm connection between the facing and the liner disc, the caps may be manufactured and stored without fear of the spots loosening and may be applied to containers, particularly those of the pressure beverage type with assurance that the spot will not separate from the liner to either weaken the seal or permit the contents to contact with the liner material.

I have discovered that by employing an adhesive of the character set forth, it is unnecessary to pre-size or treat the surface of the metal foil before applying the adhesive. Moreover, the adhesive stratum does not tend to swell when subjected to moisture and does not lose its adhesive properties throughout pasteurizing temperatures which may run as high as 185° F. Further, I have discovered that a stratum of this character has an adhesive affinity for metal foil, particularly, and also for other facings to substantially the same extent as for cork. This affinity becomes evident after extended use of a cap of this character. It is observed that there is virtually no tendency for the metal foil center to fall from or to readily separate from the cushion layer. Upon forced separation of the facing and cushion layer, a very large portion of the adhesive stratum adheres to the center spot facing and substantially to the same extent as to the cork.

Moreover, I have discovered a very unusual property, namely, that the mechanical pressure to which the facing and adhesive are subjected while the cap is positioned on the bottle improves or enhances the adherence of the center spot facing to the cork disc. In other words, actual tests have shown that; although center spot caps containing a gutta percha stratum deteriorate from the date of manufacture, particularly after being applied to a bottle, so far as adhesion of the center spot to the cushion disc are concerned, the caps of my application actually improve and when examined after a period of use the spots are more firmly united to the cushion disc than when the caps are first manufactured. This continued improvement in the adhesion has been observed throughout periods of over a year and is a vital characteristic of this invention.

I claim:

1. In a cap which incudes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive.

2. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative.

3. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base.

4. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base and a modifying agent enhancing the adhesive properties of the nitro-cellulose.

5. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner posi-

tioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive.

6. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative.

7. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base.

8. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base and a modifying agent enhancing the adhesive properties of the nitro-cellulose.

9. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

10. In a cap which includes a metal shell, a cushion liner of cork, a center facing of less diameter than the cushion liner positioned on the latter and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

11. In a cap which includes a metal shell, a cushion liner, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

12. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

13. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

14. In a cap which includes a metal shell, a cushion liner of cork, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

15. In a cap which includes a metal shell, a cushion liner, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin..

16. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

ALBIN H. WARTH.

1021

1266

Twombly

631.

6/16/33

1933

CONTENTS:

1. Application	papers.	26.	
2. Print	June 2/33	27.	
3. Rej	OCT 3- 1933	28.	
4. Amendment	a Nov 22/34	29.	
5.		30.	
6.		31.	
7.		32.	ecc/ss
8.		33.	
9.		34.	
10.		35.	
11.		36.	

1022

J. ALBERTI.

CLOSURE.

APPLICATION FILED OCT. 3, 1914.

1,199,026.

Patented Sept. 19, 1916.

Fig. 1.

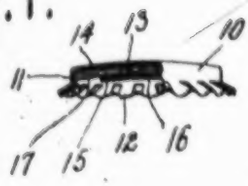


Fig. 2.

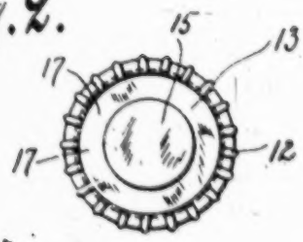


Fig. 4.

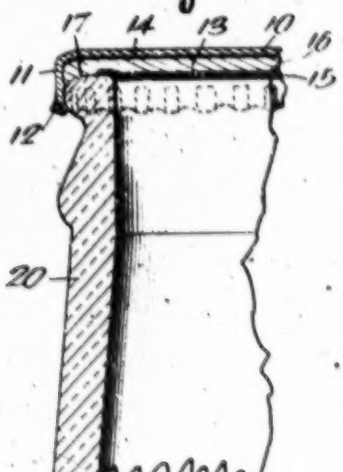
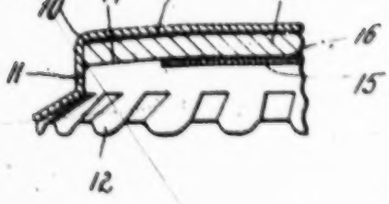


Fig. 3.



WITNESSES

F. Kane.

S. Birnbaum

INVENTOR

John Alberti.

BY

Sigmund Herzig

his ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN ALBERTI, OF NEW YORK, N. Y., ASSIGNOR TO THE INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CLOSURE.

1,199,026. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed October 3, 1914. Serial No. 864,867.

To all whom it may concern:

Be it known that I, JOHN ALBERTI, a citizen of the United States, and a resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Closures, of which the following is a specification.

The present invention relates to closures or stoppers for bottles and other receptacles; more particularly it pertains to closures of the cap variety including those termed "crown corks." Closures of this type usually comprise a metallic cap or crown to be locked to the neck of the bottle, etc., and a sealing disk or packing of cork or the like, that is held within the cap, for instance, by means of a suitable sticking material.

It has been found in practice that in many cases it is impracticable to permit the liquid contents of the bottle or other receptacle to come into contact with the sealing disk of cork or like material, as some liquids, such as pure water, mineral water or beverages of delicate flavors, are apt to acquire a "corky" taste. The commercial value of such liquids is thus greatly impaired. In order to obviate this and similar defects of the crown corks and like closures, it has been proposed heretofore to cover the outer, that is to say the exposed faces of the sealing disks, with thin layers of pliable or ductile metal, such as chemically pure block tin, aluminium or alloys of tin. With the use of these closures, however, serious difficulties have been found, which prevent the same from becoming commercially successful. One of these defects consists in that the layer of metal is apt to wrinkle and, thus, to prevent the formation of an airtight seal. Moreover, the metal, owing to its inherent properties, cannot as readily conform to defects in the glass, or other materials of which the bottle or receptacle is made, as cork or like substances will do. The result is that the slightest defect in the neck of the receptacle prevents the formation of airtight seals with these closures. When it is taken into consideration that bottles, or like receptacles upon which crown corks or similar closures are used, are manufactured in great quantities and at the lowest possible cost, it will be obvious that little care can be taken in the manufacture thereof to obtain smooth and perfect-necked articles, and, inasmuch as the metal-covered closures of the type above described did not fulfil, as mentioned above, in conjunction with rough and imperfect bottle necks their purpose, it will be easily understood why the commercial use of such closures could not be successful.

It is now one of the objects of the present invention to obviate the defects of the covered closures heretofore in use, that is to say to obtain a closure which forms under all circumstances an airtight seal, yet prevents completely the contamination of the bottle contents.

With this and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is an elevation, partly in section, of a bottle closure constructed in accordance with the present invention; Fig. 2 is a bottom plan view thereof; Fig. 3 is a vertical section taken through a portion of the closure on an enlarged scale; and Fig. 4 is a similar section taken through a portion of the closure and a bottle to which it is applied.

In the drawings, a bottle closure of the crown cork type has been shown for purposes of illustration, it being, however, obvious that the invention may be applied to any and all closures of the cap variety, the forms of the metallic caps of the closures being immaterial as far as the invention is concerned, as will readily appear from the following description.

Referring now more particularly to the drawings, the numeral 10 indicates a cap, comprising a substantially cylindrical head 11 and a corrugated flange 12, which is

Page Tightly Bound

adapted to be locked in the well known manner to the exterior of a bottle neck. This cap is made, as usual, of thin sheet iron coated with tin. In the cap is disposed a sealing disk or packing 13 of cork or like material, which is united with the cap, for instance by an interposed sticking material 14, or in any other suitable manner. To the outer, or in other words to the exposed face of the sealing disk, is attached concentrically with the latter a thin layer of tenacious or ductile metal, such as, for instance, chemically pure block tin, aluminium or an alloy of tin. This layer is made in the form of a disk, denoted by the numeral 15, its diameter being smaller than the diameter of the sealing disk 13, and being stuck to the latter by an interposed cementing medium, shown at 16. This cementing medium should, preferably, be of the type that is insoluble in liquids after it has set and formed a union between the packing and the metallic disk; it should be insoluble at normal temperature and also at temperatures above the normal. It has been found in practice that albumen is particularly adapted for use in connection with this invention, it being inodorous, tasteless, soluble in water and thus readily preparable for use. Moreover albumen coagulates easily and is rendered insoluble at about 140° Fahrenheit, the coagulation resulting in a firm union between the packing of the cork or the like and the metallic disk, such union being brought about almost instantaneously. In manufacturing these closures, the cementing medium is applied either to the exposed face of the sealing disk or packing of cork or the like, or it may be spread over that surface of the metallic disk that is to be in contact with the packing, or it may be carried by a layer of fibrous material that is to be interposed between the two disks, the metallic disk being then concentrically positioned in relation with and upon the packing, the entire closure being put, if necessary, under pressure and heated, whereby the cementing medium is coagulated, holding thus the metallic disk in place.

It should be noticed that in these closures an annular portion of the outer face of the packing adjacent its periphery is exposed, the remainder being covered by the metallic disk 15. The exposed portion, denoted in the drawings by the numeral 17, may vary, of course, according to the requirements, that is to say according to the thickness of the wall of the bottle neck.

It is obvious that, while herein a specified cementing medium has been described, others may just as well be used without departing from the spirit of the invention, which lies mainly in the provision of a metallic disk that covers a portion of the outer face of the packing of cork or the like of the closures, leaving an annular portion adjacent to the peripheral section of the packing exposed or uncovered.

The operation of the closure herein described is as follows: When the cap is secured to the neck of the bottle 20 in the well known manner, the wall of the neck of the bottle is forced against the exposed annular portion of the packing, the metallic disk of the closure, being slightly larger than the inner diameter of the neck of the bottle, effectively prevents the tainting of the contents of the bottle, inasmuch as it prevents the contents from coming into contact with the packing. Inasmuch as, however, the wall of the bottle neck is pressed against the packing, the closures constructed in accordance with this invention retain the advantages of the ordinary and absolutely perfect crown corks or similar closures, that is to say they seal the bottle or other receptacle against escape of gaseous and liquid matter.

What I claim is:—

1. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said flat disk being cemented to the exposed face of said sealing disk.

2. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium that is coagulated and rendered insoluble by heat.

3. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium consisting of a heat coagulated albuminous substance.

4. A closure for receptacles comprising a metallic cap, a sealing disk of cork or the like therein covering the entire inner face of the head portion thereof, and a flat disk of

ductile metal exterior to said sealing disk, said flat disk having a diameter that is substantially smaller than that of said sealing disk but slightly larger than the inner diameter of the neck of the receptacle to which said closure is to be applied, said two disks being stuck together by an interposed cementing medium that is coagulated by heat.

Signed at New York, in the county of New York, and State of New York, this 1st day of Oct., A. D. 1914.

JOHN ALBERTI.

Witnesses:
SIGMUND HERZOG,
S. BIRNBAUM.

BLANK

PAGE

Patented Apr. 23, 1929. 1,710,453

UNITED STATES PATENT OFFICE.

MAURICE VALENTINE HITT, OF PARLIN, NEW JERSEY, ASSIGNOR TO E. I. DU PONT DE NEMOURS & COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

NITROCELLULOSE COATING COMPOSITION AND FILM MADE THEREFROM.

No Drawing. Application filed October 13, 1923. Serial No. 668,285.

This invention relates to coating compositions and films made therefrom, and more particularly to nitrocellulose lacquers and enamels wherein the nitrocellulose has a specific viscosity characteristic and a solvent softener is present to impart certain new characteristics to the lacquers and enamels and films made therefrom, all as more particularly hereafter described.

The invention has as an object the production of nitrocellulose lacquer and enamel compositions containing solvent softeners, particularly nitrocellulose having a certain specific viscosity characteristic. Another object of the invention is to provide such compositions wherein the content of total solids, exclusive of pigments, is more than 15% and the nitrocellulose content more than 7% after the composition has been thinned down to a viscosity between 100 and 300 centipoises as measured by the Stormer viscometer at 28° C. A further object is to properly proportion the ingredients of the compositions, particularly in reference to the pigments, in order to obtain the most advantageous results. A still further object is to provide films and articles coated with films from the aforesaid compositions, which films shall be hard, durable, tough, adhesive, and non-shrinking. Further objects will be apparent as the following description proceeds.

In the manufacture of pyroxylin lacquers and enamels as heretofore carried on, it has not be practicable to make solutions having a nitrocellulose content, after thinning to the extent required for use as a dip or spray lacquer, namely, 100–300 centipoises, of more than about 6%, for with ordinary nitrocellulose, more than this proportion thereof renders the solution too viscous. Moreover in the presence of this maximum amount of nitrocellulose the proportion of gum had to be comparatively low, so that as a rule it has been necessary to limit the total solids content of these old lacquers and enamels, exclusive of pigment, when thinned to spraying viscosity, namely 100–300 centipoises, to less than 13%.

In connection with the compositions of my invention I have found that by using reduced-viscosity nitrocellulose, which may be produced, for example, as described in the application of E. C. Pitman, Serial No. 594,994 filed October 16, 1922, lacquers and enamels may be prepared having a nitrocellulose content, based on the weight of the coating composition, exclusive of pigment, and after the required thinning to between 100 and 300 centipoises, of more than 7%, and, if desired above 9%, and a total solids content, exclusive of pigment above 15%. The main advantage attending the use of a high nitrocellulose, high total solids lacquer or enamel of this kind is that the number of coats which it is necessary to apply to form a coating of the desired thickness is materially reduced.

The description of the nitrocellulose content and total solids content as being determined after the required thinning to from 100 to 300 centipoises, is made necessary because of the fact that pyroxylin lacquers are sometimes made and sold in a concentrated form, that is, with a relatively high nitrocellulose content and high total solids content, but with a viscosity so high that the lacquer must be thinned or diluted with a volatile solvent to reduce the viscosity to the required value. When such old concentrated lacquers of the prior art have been thinned down to a working consistency they have, as explained above, a nitrocellulose content substantially less than 7%, and a total solids content substantially less than 15%. In discussing solutions of cellulose esters, etc., it is customary to indicate the concentration of the solution by reference to the number of ounces of cellulose ester, etc., dissolved in one gallon of solvent. For example, a solution obtained by dissolving 16 ounces of nitrocellulose in one gallon of ethyl acetate would be described as a 16 oz. ethyl acetate solution of nitrocellulose.

The ordinary types of pyroxylin lacquers and enamels heretofore known do not contain a solvent softener. This is quite natural in view of the fact that pryoxylin lacquers

hitherto have been chiefly used for forming very thin films, and there has been less reason why a softener should be used. Furthermore, solvent softeners do not exhibit any special advantages in high viscosity nitrocellulose compositions. The new lacquers and enamels, on the other hand, made from reduced-viscosity nitrocellulose, are intended to enter an entirely new field in a new capacity—namely, as competitors of varnish and enamel paint. They will be used to form a comparatively thick coat on nearly rigid surfaces, and this coat must have sufficient flexibility to withstand ordinary blows and slight bending without cracking. This flexibility is attained by the use of a solvent softener.

It is probably still more important that a solvent softener be present because of the nature of the film made by reduced viscosity nitrocellulose. A solvent softener is important in solutions of reduced viscosity, such as those with which the present invention is concerned, because when the viscosity has been reduced to this degree the film more readily becomes brittle on aging, especially at elevated temperatures. Apparently the reduced viscosity nitrocellulose has less power to retain a non-solvent softener or even a solvent of high volatility, as compared with the ordinary type of pyroxylin which has hitherto been used. By using a solvent softener, and especially one that is substantially non-volatile, the original quality of the film is improved and its life is greatly prolonged. This effect is shown very definitely by tests on aging at 65° C. The use of acetyl-laurin, for instance, makes it possible to stamp the surface satisfactorily even after high temperature storage.

The advantages attending the use of a solvent softener in the new lacquers and enamels, as compared with the use of a non-solvent softener such as castor oil, comprise the great and unexpected improvement in flexibility of the film, better adhesion, freedom from blushing, ease of sanding and buffing, etc. Whereas low viscosity nitrocellulose of the herein described type will not provide a flexible film, yet the addition of a solvent softener will not only remove the brittleness by providing a film whose flexibility is largely retained, but it will also provide a material increase in the final flexibility of the film as compared with the original nitrocellulose itself. In this manner, the original low viscosity nitrocellulose is made available for all forms of lacquers and enamels where flexibility is required, whereas previously such low viscosity solutions had a more limited use even with the presence of a softener like castor oil.

As solvent softeners, I may use, for example, any one or more of the following substances: dibutyl phthalate, benzyl butyl phthalate (specifically the ortho-phthalates), acetyl-laurin (see G. L. Schwartz application Serial No. 551,734), camphor, and tricresyl phosphate and their equivalents. Among solvent softeners I prefer to use those which are substantially non-volatile, and for that reason dibutyl phthalate is not as good as the others mentioned because its volatility is too high in some cases. However, if it is used in connection with a practically nonvolatile softener it is usually very satisfactory. By the term "solvent softeners" I mean such substances as I have just recited and their equivalents, and preferably such as are liquid below 50° C. and have an appreciable solvent action on pyroxylin.

The following examples are illustrative of my invention, which is not, of course, limited thereto since many changes can be made therein without departing from the spirit and scope of the invention.

Example 1.

A lacquer made in accordance with my invention may have the following composition, (the nitrocellulose used in this example having a viscosity, as measured in the form of a 16 oz. C. P. ethyl acetate solution thereof at 28° C., of between 550 and 1500 centipoises):

Lacquer #1.

	Per cent
Nitrocellulose of reduced viscosity	12.7
Butyl acetate	26.2
Butyl alcohol	8.7
Ethyl acetate	10.5
Denatured alcohol	10.0
Acetone	6.7
Methyl alcohol	4.8
Resin or gum	5.4
Toluol	12.9
Acetyl laurin	2.0
	100.0

In place of the acetyl-laurin in the above formula, I may use another substantially non-volatile solvent softener such as dibutyl o-phthalate or benzyl butyl ortho-phthalate the volatile solvents may also be varied in both composition and proportion.

For the resin constituent, I may use any varnish gum or resin that is soluble in the volatile ingredients of the lacquer, examples thereof being dammar, mastic, soft copal, elemi, rosin, sandarac, and shellac.

The viscosity of the above described lacquer #1 as measured by the Stormer viscometer at 28° C. is between 900 and 1100 centipoises. When thinned by adding 40 parts of thinner to 60 parts of lacquer its viscosity is between 100 and 300 centipoises.

The thinner used may have the following composition:

	Per cent.
Ethyl acetate	25
Butyl acetate	25
Butyl alcohol	10
Toluol	20
Xylol	20
	100

In preparing this lacquer #1, the following procedure may be followed, although the lacquer may also be prepared in various other ways:

Seventy-five parts by weight of a nitrocellulose base solution (*a*), containing a reduced viscosity nitrocellulose whose viscosity lies between 500 and 1500 centipoises in 16 oz. C. P. ethyl acetate solution, is mixed with thirteen parts by weight of a resin solution to give the necessary resin content as shown above. Softener and toluol are added and the whole mixed until thorough incorporation is produced. A clear dark amber colored solution should be produced.

The nitrocellulose base solution referred to in the preceding paragraph has the following composition:

	Per cent.
Butyl acetate	35
Butyl alcohol	11
Ethyl acetate	12
2-B denatured alcohol	16
Acetone	3
Methyl alcohol	6
Pyroxylin	17
Total	100

An ordinary barrel type of mixture is used in making up this solution. The nitrocotton, having a viscosity of about 35,000 centipoises, plus .8% of its weight of crystalline sodium acetate is added to the mixer, care being taken that there is a thorough intermixing of the salt and nitro-cotton. The solvents are then added, and the whole thoroughly mixed until an easily flowing solution is obtained. This solution is then run into barrels which are placed in a closed room maintained at 38–40° C. Samples are taken from these barrels from time to time and viscosity measurements make until the difference between separate viscosity measurements indicates that the reducing action has practically ceased. This has been found by experience to require about four to six weeks for this type of mixture. When this point is reached the barrels are withdrawn from the heated room and stored at ordinary room temperature until such time as the contents are needed for use in regular mixtures. The nitrocellulose component of the reduced viscosity solution, when isolated, and dissolved in C. P. ethyl acetate, forms a solution having a viscosity of about 600 to 700 centipoises at 28° C.

The resin solution may be prepared in the usual way by dissolving the resin to be used (e. g. dammar, shellac, or elemi) in a solvent mixture in which it dissolves readily, and which mixes readily with the nitrocellulose base solution, and separating the clear solution by decantation after the insoluble portion has settled.

Example 2.

Another typical lacquer coming within the scope of my invention has the following composition:

Lacquer #2.

	Per cent.
Nitrocellulose of reduced viscosity	18.30
Butyl acetate	23.40
Ethyl acetate	9.60
Butyl alcohol	5.40
Denatured alcohol	12.40
Acetone	1.70
Methyl alcohol	3.90
Resin or gum	5.80
Benzol	1.80
Toluol	12.70
Dibutyl phthalate	5.00
Total	100.00

The viscosity of the above described lacquer No. 2 as measured by the Stormer viscometer at 28° C. is between 1300 and 1500 centipoises. When thinned by adding 40 parts of thinner to 60 parts of lacquer the viscosity is between 100 and 300 centipoises.

In the above described lacquer #2 there may be used for the resin constituent any of the resins or gums mentioned above; and in place of dibutyl phthalate, other solvent softeners may be used.

The pyroxylin used in lacquer #2 has an average viscosity below 400 centipoises, and preferably of about 300 centipoises. This low average viscosity pyroxlyn is prepared by mixing twenty-one (21) parts by weight of the nitrocellulose base solution (*a*) described in connection with lacquer #1 (said base solution containing 17% of nitrocellulose having a viscosity of about 625 centipoises), with about forty-nine (49) parts of a base solution (*b*) of practically the same solvent composition as base solution (*a*) but containing 30% of nitrocellulose whose 16 oz. C. P. ethyl acetate solution has a viscosity of about 160 centipoises.

A nitrocellulose base solution (*b*), containing nitrocellulose whose 16 oz. C. P. ethyl acetate solution has a viscosity of between 90 and 340 centipoises when measured by the Stormer viscometer at 28° C., may be produced by dissolving in a solvent com-

1029

position a soluble nitro-cotton whose 16 oz. C. P. ethyl acetate solution has a viscosity of about 35000 centipoises at 28° C., to form a solution having the following composition:

	Per cent.
Butyl acetate	33.30
Butyl alcohol	5.70
Acetone, C. P	2.30
Ethyl acetate	11.30
Methyl alcohol, (99%)	5.40
2–B denatured alcohol	12.00
Nitrocellulose	30.00
	100.00

and subjecting the nitro-cotton in this solution to the action of sodium acetate. The detailed procedure for making base solution (*b*) is exactly similar to that described above for making base solution (*a*), except that the sodium acetate added is equal to 2% of the weight of the nitrocotton used. The time necessary to obtain the required reduction in viscosity is two to three weeks at 38–40° C.

To manufacture the lacquer, the following procedure is followed:

Forty-nine parts by weight of the 30% base, and twenty-one parts by weight of the 17% base are mixed with twelve and one-half parts by weight of a resin solution, and the necessary amounts of dibutyl phthalate and toluol added. The whole is mixed until a clear dark amber solution is obtained, and it is then ready for application. Reduced to formulation on this basis the composition reads:

	Per cent.
30% base	49.00
17% base	21.00
Resin solution	12.50
Dibutyl phthalate	5.00
Toluol	12.50
	100.00

Although the viscosity of my new coating compositions when ready for use as dip or spray lacquers or enamels, is from about 100 to 300 centipoises, I preferably employ a nitrocellulose whose viscosity-characteristic is such that the finished coating composition will have a viscosity of about 125 centipoises, the nitrocellulose content being above 9%, and, more specifically, a coating composition, with the above approximate viscosity having a nitrocellulose content above 7% and a total solids content, exclusive of pigment, above 15%.

Example 3.

Where an enamel is to be prepared a pigment is incorporated in the coating composition, the percentage of pigment being usually between 5 and 30% based upon the weight of the finished enamel. As suitable pigments there may be mentioned zinc oxide, lithopone, titanium oxide, blanc fixe, ultramarine blue, and carbon blacks. Other mineral pigments and lakes in general may be used. A typical enamel illustrative of my invention has the following composition, the viscosity of the nitrocellulose used therein being between 400 and 1500 centipoises in 16 oz. ethyl acetate solution:

	Per cent.
Pigment	9.00
Pyroxylin	10.50
Resin or gum	7.60
Dibutyl phthalate	6.50
Butyl acetate	21.60
Butyl alcohol	7.20
Ethyl acetate	8.60
Denatured alcohol	15.90
Acetone	1.70
Methyl alcohol	3.90
Benzol	8.40
	100.00

This enamel will show a viscosity in the neighborhood of 1,000 centipoises and will have to be thinned in the neighborhood of 30% of thinner and 70% of enamel to obtain spraying viscosity.

The volatile solvents employed in these high percentage pyroxylin, low viscosity coating compositions are chiefly acetone, acetone oils, the lower alcohols (methyl, ethyl, etc.) and the lower alkyl acetates, such as ethyl, propyl, butyl, and amyl acetates. As diluents there may be used the volatile petroleum hydrocarbons, and the benzenoid hydrocarbons such, for example, as benzene and toluene. I have found it advantageous to employ low boiling alcohols and certain high boiling esters or ketones, such as butyl acetate, in approximately the proportions described; that is, the low boiling alcohols approximately in the same proportion as the nitrocellulose and the high boiling esters or ketones approximately from an equal proportion to about three times the proportion of nitrocellulose. I have found it advantageous to have the proportion of resin or gum in many cases approximately two-thirds to one-half that of the nitrocellulose and the solvent softener approximately one-third to one-seventh that of the nitrocellulose as shown by the foregoing examples, although some deviation may be made from these proportions. The proportion of pigment will vary from 5 to 30% as stated previously, according to the nature of the lacquer or enamel desired to be produced, and the quality of pigment; as shown by the examples, the proportion is preferably 5 to 9 parts for 10 or 12 of nitrocellulose.

The viscosity values herein mentioned are values obtained at 28° C., with a 500 g. weight, with the aid of the Stormer viscometer, and, in the cases of nitrocellulose, they

1020

are the values of a 16-oz. chemically pure ethylacetate solution thereof. The viscosity characteristic of the nitrocellulose employed in the foregoing compositions should be below 1500 centipoises when employing low viscosity nitrocellulose, and will often preferably be below 400 centipoises. In view of the favorable action of sodium acetate or its equivalents in reducing the viscosity of nitrocellulose, as herein described, there will be no disintegration thereof so as to reduce the nitrogen content to too low a figure, and it is therefore unnecessary to specify a lower value for the viscosity characteristic, but such may be well below 400 or even 100 centipoises.

The films produced from the lacquers and enamels described above will be hard, durable, tough, adhesive, and relatively non-shrinking. The films will, as before stated, be used to form relatively thick coats on rigid surfaces, and owing to the presence of solvent softeners, they will have good flexibility and the non-softeners will reinforce the low viscosity nitrocellulose (which is relatively very low), so that both materials will cooperate in providing a film which will not become brittle on aging and not show such signs of deterioration as might be shown by a low viscosity film containing no solvent softener. The presence of resins also materially enhances the quality and adhesion of the films, and thus, in conjunction with the solvent softeners, provides a film not heretofore produced. By the addition of pigments in the relative proportions described, a successful colored film may be produced.

As many apparently widely different embodiments of this invention may be made without department from the spirit thereof, it is to be understood that I do not intend to limit myself to the specific embodiments thereof except as indicated in the appended claims.

I claim:

1. A nitrocellulose coating composition comprising in combination nitrocellulose whose viscosity characteristic is such that a 16-oz. C. P. ethyl acetate solution thereof has a viscosity at 28° C. of below 1500 centipoises; and a solvent softener for the nitrocellulose.

2. A nitrocellulose coating composition comprising in combination nitrocellulose whose viscosity characteristic is such that a 16-oz. C. P. ethyl acetate solution thereof has a viscosity at 28° C. of below 400 centipoises; and a solvent softener for the nitrocellulose.

3. A nitrocellulose coating composition comprising in combination a reduced viscosity nitrocellulose whose viscosity characteristic is such that a 16-oz. C. P. ethyl acetate solution thereof has a viscosity at 28° C. of below 1500 centipoises; a solvent softener for the nitrocellulose having a melting point below 50° C. and being non-volatile.

4. A pyroxylin coating composition having a viscosity of between 100 and 300 centipoises at 28° C., and containing more than 9% of nitrocellulose, a volatile nitrocellulose-solvent, and a solvent softener for the nitrocellulose, the viscosity-characteristic of said nitrocellulose being such that a 16-oz. C. P. ethyl acetate solution thereof has a viscosity at 28° C. of less than 1500 centipoises.

5. A pyroxylin lacquer comprising, in combination, nitrocellulose, a substantially non-volatile solvent softener therefor, and a gum, said nitrocellulose having a viscosity characteristic which, when expressed in terms of the viscosity of a 16 oz. C. P. ethyl acetate solution thereof, is less than 1500 centipoises.

6. A lacquer as defined in claim 2 in which the softener comprises dibutyl phthalate.

7. A pyroxylin enamel comprising nitrocellulose, a solvent softener therefor, a pigment, and a gum, the viscosity-characteristic of the nitrocellulose, expressed in terms of the viscosity of a 16 oz. ethyl acetate solution thereof, being below 400 centipoises.

8. A coating composition comprising a low viscosity nitrocellulose having a viscosity characteristic below 1500 centipoises as defined; a solvent softener in the proportion of about two-thirds to one-seventh of the nitrocellulose; and a resin in the proportion of less than one-half of the proportion of the nitrocellulose.

9. A coating composition comprising a low viscosity nitrocellulose having a viscosity characteristic below 1500 centipoises as defined; a solvent softener in the proportion of about one-seventh to two-thirds that of the nitrocellulose; a resin less than one-half that of the nitrocellulose; and a low boiling alcohol in about the same proportion as the nitrocellulose.

10. A coating composition comprising a low viscosity nitrocellulose having a viscosity characteristic below 1500 centipoises as defined; a solvent softener in the proportion of about one-seventh to two-thirds that of the nitrocellulose; a resin less than one-half the proportion of the nitrocellulose; a low boiling alcohol in about the same proportion as the nitrocellulose; and a high boiling ketone or ester in a proportion from about one to three times that of the nitrocellulose.

11. A coating composition comprising a low viscosity nitrocellulose having a viscosity characteristic below 1500 centipoises as defined; a solvent softener from about one-seventh to two-thirds the proportion of the nitrocellulose; and a resin in less than one-half the proportion of nitrocellulose.

12. A coating composition comprising a

low viscosity nitrocellulose having a viscosity characteristic below 1500 centipoises as defined; a resin, and a pigment; the proportion of the resin being less than half that of the nitrocellulose, and the proportion of pigment being from 5 to 30 parts for about 12 of the nitrocellulose.

13. A coating composition comprising a low viscosity nitrocellulose having a viscosity characteristic below 1500 centipoises as defined, a resin, a solvent softener, and a pigment; the proportion of resin being less than half that of the nitrocellulose, the proportion of softener being from one-seventh to two-thirds that of the nitrocellulose, and the proportion of pigment being from 5 to 30 parts for about 12 of the nitrocellulose.

14. A coating composition comprising a low viscosity nitrocellulose having a viscosity characteristic below 1500 centipoises as defined, in the proportion of about 10 parts; a resin less than 5 parts; a pigment 5 to 9 parts; a solvent softener from 2 to 7 parts; a small proportion of non-drying oil, but substantially no drying oil; and solvents to provide a flowable or spraying lacquer.

15. A coating composition comprising a low viscosity nitrocellulose having a viscosity characteristic below 1500 centipoises as defined, in the proportion of about 10 parts; a solvent softener from 2 to 7 parts; a pigment 5 to 9 parts; and solvents to provide a flowable or spraying lacquer.

16. An article coated with a hard, durable, tough, adhesive, film containing nitrocellulose whose viscosity characteristic is below 1500 centipoises as defined, and a solvent softener.

17. An article coated with a hard, durable, tough, adhesive, substantially non-shrinking film containing nitrocellulose whose viscosity characteristic is below 1500 centipoises as defined, a solvent softener, and a resin.

18. An article coated with a hard, durable, tough, adhesive, substantially non-shrinking film containing nitrocellulose whose viscosity characteristic is below 400 centipoises as defined, and a solvent softener.

19. An article coated with a hard, durable, tough, adhesive, substantially non-shrinking film containing nitrocellulose whose viscosity characteristic is below 1500 centipoises, a solvent softener in the proportion of one-seventh to two-thirds that of the nitrocellulose, and a pigment in the proportion of 5 to 9 parts for 12 of nitrocellulose.

20. An article coated with a hard, durable, tough, adhesive, substantially non-shrinking film containing nitrocellulose whose viscosity characteristic is below 1500 centipoises, a resin in the proportion of less than half that of the nitrocellulose, and a pigment in the proportion of 5 to 9 parts for 12 of nitrocellulose and a solvent softener.

21. An article coated with a hard, durable, tough, adhesive, substantially non-shrinking film containing nitrocellulose whose viscosity characteristic is below 1500 centipoises, a solvent softener in the proportion of one-seventh to two-thirds that of the nitrocellulose, a resin in the proportion of less than half that of the nitrocellulose, and a pigment in the proportion of 5 to 30 parts for 12 of nitrocellulose.

In testimony whereof I affix my signature.

MAURICE VALENTINE HITT.

CERTIFICATE OF CORRECTION.

Patent No. 1,710,453. Granted April 23, 1929, to

MAURICE VALENTINE HITT.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 35, for the word "be" read "been"; page 3, line 39, for the word "mixture" read "mixer"; page 5, line 24, for the compound word "non-softeners" read "solvent softeners"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 11th day of June, A. D. 1929.

M. J. Moore,
Acting Commissioner of Patents.

(Seal)

BLANK

PAGE

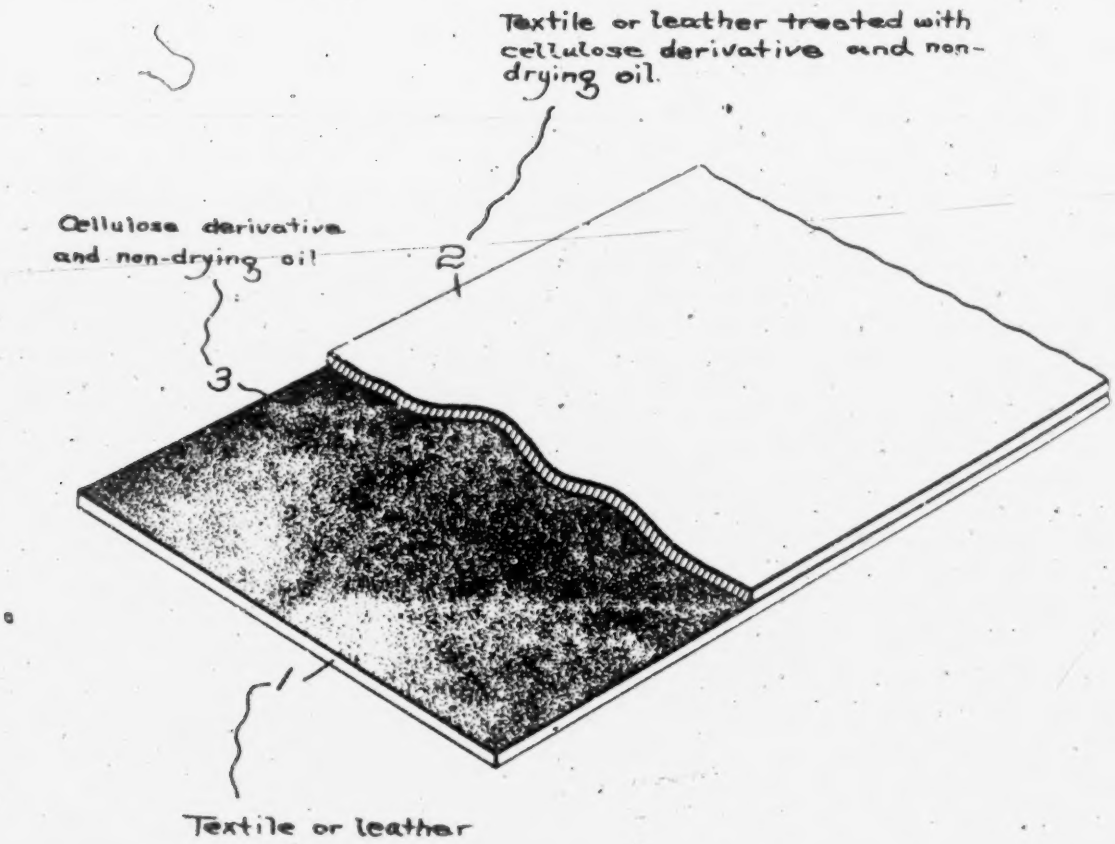
1033

J. J. BYERS.

SHEFT MATERIAL AND METHOD OF TREATING THE SAME.

APPLICATION FILED JAN. 10, 1917.

1,325,075. Patented Dec. 16, 1919.



Inventor:
Joseph J. Byers,
by Emery Booth Janney & Varney
Attys.

UNITED STATES PATENT OFFICE.

JOSEPH J. BYERS, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO PRODUCTS SYNDICATE, INC., OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SHEET MATERIAL AND METHOD OF TREATING THE SAME.

1,325,075. Specification of Letters Patent. Patented Dec. 16, 1919.

Application filed January 10, 1917. Serial No. 141,667.

To all whom it may concern:

Be it known that I, JOSEPH J. BYERS, a citizen of the United States, and a resident of Brookline, county of Norfolk, State of Massachusetts, have invented Improvements in Sheet Materials and Methods of Treating the Same, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to the art of applying a sheet or layer of material to another, for the purpose of imparting thereto certain desirable qualities, as well as to the improved product obtained by said method. The invention is applicable to any sheet material, but the invention contemplates more particularly the application thereof to textile or other fibrous materials, such as leather for example, at least one of the sheets having preferably been treated so as to impart thereto wear-resisting and other advantageous qualities.

The invention will best be understood from the following description, taken in connection with the accompanying drawing, of one illustrative product of my improved method, and of the best mode or manner known to me for practising such method, while its scope will be more particularly pointed out in the appended claims.

The accompanying drawing shows one improved product embodying my invention.

Referring to the drawing, the sheet of material 1 therein illustrated is given merely as an example of any textile or other fibrous material, such as leather for example, to which it is desired to apply another wear-receiving sheet 2.

The outer or wear-receiving sheet will preferably be treated to render the same water-repellent and highly wear-resisting, and is then so applied to the other sheet 1 as to constitute a homogeneous, wear-resisting layer.

Any suitable material may be taken as a basis for the wear-receiving sheet 2, but preferably this will be of some fibrous material such as a textile fabric or leather. Certain materials, such as ordinary grades of chrome-tanned leather for example, which, owing to their porosity, lack of body and tendency to stretch when moist are not adapted for certain uses where wear-resisting or other special qualities are required, will, when treated by my process, become suitable for such uses.

The sheet material 2 which is to constitute the wear-receiving sheet or member is preferably treated with a cement-like substance consisting of or including a cellulose derivative in solution and containing a quantity of non-oxidizing oil. This treatment is carried out in such a manner as to impregnate the material throughout with the oil-containing cement. This cement-like substance, containing a cellulose derivative and a non-oxidizing oil, will hereinafter be referred to briefly as the cement.

The materials composing the cement and the proportions in which they are mixed may be varied within wide limits. A suitable cement, for example, may be prepared by dissolving some cellulose derivative, a soluble nitrocellulose for example, in a suitable solvent, which may be acetone and alcohol in equal parts; if, for illustration, soluble nitro-cellulose and acetone and alcohol are used, one pound of soluble nitro-cellulose to one gallon of solvent may be employed with good results. To this is added a substantial amount of some non-oxidizing or non-drying oil, preferably a vegetable oil. This, for example, may be castor oil in the proportion of eight ounces to one pound of soluble nitro-cellulose.

The preferred method of impregnation is by immersing the material in a bath composed of the cement. For illustration, a bath may be prepared of sufficient volume and proportion to the mass of the material to be treated to maintain the material immersed for the required time thoroughly to impregnate it without impairing the fluidity of the bath or effectiveness of the treatment. The tank or other receptacle employed for the bath is closed to prevent any substantial evaporation of the solvent during the treatment of the material and is also provided with suitably controlled heating means so as to maintain the bath at a suitable temperature.

The temperature of the bath is preferably maintained at a point above the normal temperature of the air but below that which would rapidly evaporate the solvent or impair the material to be treated. In the treatment of leather with a cement constituted as described and containing the stated amount of castor oil, the temperature should

Page Tightly Bound

1035

be preferably less than 150° F. Good results are obtained with temperatures varying from 125° to 130° F.

Porous materials such as leather usually hold absorbed more or less hygroscopic moisture. To facilitate the impregnation of the material with cement, it is preferable to remove substantially all water and hygroscopic moisture from the material before its treatment. This may be accomplished in any suitable or desirable manner, but, in the case of leather, a simple method is to expose the material to a suitable drying temperature for a period long enough to drive out the moisture. The time and temperature required will differ for different materials and for different masses of the same material. In the case of leather, for example, the leather may be hung or spread over night in a drying room or a drying oven at a temperature of from 120° to 150° F. In the case of some textile fabrics or thin sheet material, the material may be prepared for immersion by passing the same slowly through a drying room or drying apparatus.

Preferably also the material should be handled and the treatment carried out in a room where the air has a low humidity, so that in passing from the drying operation to the immersion, the material may have no opportunity to absorb or collect any substantial or detrimental amount of moisture.

By expelling substantially all the moisture in the leather or other material, and immersing it while in a dry state, the permeation or impregnation of the material is facilitated and it is possible to impregnate the entire mass with the cement.

With the material dried as described, it may be immediately plunged into the bath and there maintained immersed in the presence of heat for a long enough period thoroughly to impregnate it with the cement.

The period during which the immersion may be profitably continued will vary with the material and its thickness. For sole or similar leather, for example, several minutes to several hours may be required, according to thickness. In the case of some thin, permeable material, a few minutes will sometimes be sufficient. The immersion is continued for an appreciable period, sufficiently prolonged to impregnate the material throughout. In the presence of heat and immersed in the solution, the material becomes thoroughly impregnated with the cement.

The material treated by this method will be thoroughly impregnated throughout as distinguished from a mere surface coating or a coating which has a mere anchorage or impregnation of limited depth. Leather thus treated acquires the property of repelling water, has great durability and density and a high degree of flexibility.

Furthermore, the water-repellent properties and flexibility are long continuing, which I attribute to the fact that the oil which is sealed into the fibers or particles by the cement cannot be washed out by exposure to moisture. When ordinary leather becomes wet and is thereafter dried by exposure to heat, it loses its softness and flexibility, becomes dry and hard and cracks readily. This is largely due to the fact that the oil, soap or grease contained in the leather has been in part washed out by the wetting of the leather and in part driven out by the subsequent application of heat for drying the leather. Leather treated by my present method and which has become damp can be readily dried by the application of heat without becoming hard or stiff and without losing its flexibility and water-repellent properties, which I also attribute to the fact that the oil is sealed into the individual fibers or particles by the cement and cannot be driven out by the heat used to dry the leather.

It will thus be seen that leather treated by my process appears to have an oil-flexed property which is substantially permanent while the oil commingled with the cement throughout the body gives it a high degree of permanent flexibility and water-repellent property.

After removing the material from the bath, it is dried, the effect of this is apparently to unite the fibers or particles into a homogeneous mass, leaving the oil sealed in the particles or fibers and protected by the cement, which as I believe, incases them and binds them together throughout.

The impregnated sheet material need not necessarily be absolutely dry but the drying should be sufficient to set the cement at least near the surface, and it is then ready to be applied to other material, to serve, for example, as a wear-receiving member or lave in respect to the latter. This will preferably be by cementing it thereto. Where the material treated in accordance with my process is applied directly to another material, for example leather or other fibrous material which has not been so treated, that face of the latter to which my treated material is to be applied will preferably be roughened up so as to open up the fibers and permit the penetration of the cement solution used to a sufficient depth to secure a firm anchorage.

As an illustrative method of applying a fibrous material, leather for example, treated by my above-described process to material, either leather or other fibrous material not so treated, the following may serve: One surface of the untreated material having been roughened as above stated the same is covered with a cement solution and a similar solution is applied to one face of the cement-impregnated material. Pre-

Page Tightly Bound

erably both materials should be warm and dry before application of the cement and the operation should preferably be carried out in a dry atmosphere. The cement employed for this coating is preferably a cement which contains a cellulose derivative and oil, and may be of the same nature as the cement used for impregnating the cement-impregnated material. Preferably, however, it will be heavier or more concentrated than that cement, such, for example, as might be obtained by using one half or less of the solvent contained in the cement used for impregnation. The coating thus applied to the surfaces to be united serves to fill the surfaces and to lay the nap or surface fibers. This coating is not merely anchored to the surface of the impregnated material but appears to become dissolved into and united with the homogeneous cemented mass of the material and becomes a part thereof. When the coating thus applied to the two surfaces to be united has dried, one of said surfaces is given another coating of adhesive cement, preferably the same as that used for impregnation, and while this coating of cement is still fluid, these two surfaces are applied to each other and are subjected to a suitable even pressure throughout, this pressure being preferably maintained until the cement is set. It is sometimes preferable to apply the solvent used to dissolve the cement, in place of this last coat of adhesive cement, the solvent thus applied apparently sufficing to render the previous coating of cement sufficiently soft and tacky, firmly to unite the layers. Heat applied in conjunction with pressure will conduce to the evaporation of the solvent and the setting of the cement. When the cement is set, the pressure may be removed and the resultant product allowed thoroughly to dry, when the two materials will be found to be permanently cemented to each other. The pressure may be applied in any suitable manner or any suitable means, as for example by subjecting the two superposed layers to direct pressure between heated presser members, such as flat plates, or between presser rolls. But the direct pressure between two flat plates in a stationary press, so constructed that the plates will exert a substantially uniform continued pressure simultaneously on all parts of the material, or a considerable area thereof, for a more or less prolonged interval, or until the cement is set, will in general be found more satisfactory. The pressure as applied will preferably be yielding; it serves to condense and compact the cement-impregnated fibers of the material.

Instead of uniting a cement-impregnated material with one not cement-impregnated, two cement-impregnated materials may be united by following the same mode of procedure above described, excepting that in such case, neither of the surfaces to be united will be roughened before applying thereto the preliminary cement coatings.

In all cases both materials to be united will preferably be warm and dry before the adhesive coat of cement for uniting them is applied, and as already stated the operation will preferably be carried out in a dry atmosphere.

It will be apparent that any number of pieces or sheets of material may be united as described, all of said pieces or sheets being cement-impregnated or one or more being cement-impregnated sheets or pieces, and one or more not. It will also be apparent that the alternative arrangement of the sheets or layers of material may vary as best suited to the purpose for which the resultant product is to be used, the cement-impregnated pieces or sheets and those not impregnated alternating either regularly or irregularly. Thus, where more than two pieces or sheets or layers of material are united, one or more that are not cement-impregnated may be embraced between two or more cement-impregnated ones, or vice versa, or two or more nonimpregnated pieces or sheets or layers may be provided with a single outer impregnated piece, layer or sheet as a wear-receiving member, for example.

It will also be apparent that where more than two layers of pieces of material are united in accordance with my process, they may be united singly, or simultaneously in any numbers desired, it being borne in mind that where an impregnated piece is united to one that is not impregnated, as also where two unimpregnated pieces are united directly, the surface or surfaces of the unimpregnated piece or pieces to which the layer of cement is applied should preferably first be roughened.

The cement layer 3 by which the cement-impregnated pieces or sheets of material are united appears to unite with the cement which permeates said pieces or sheets and forms therewith a homogeneous body. In the same manner the cement that unites a cement-impregnated piece or sheet of material to one that is not so impregnated appears to unite so intimately with the fibers of the non-impregnated piece or sheet as well as with the cement which permeates the cement-impregnated piece or sheet as to form with both of these a homogeneous body. The adhesive layer of cement also acquires the same flexibility and water-repellent characteristics as the impregnated sheet material, so that it becomes one with the material that it unites, with no opportunity or tendency for separation thereat or therefrom, and such layer bends and flexes freely in unison with the pieces or sheets of

1037

material that it unites, so that there appears to be an absence of wear-producing friction between said pieces. The pieces of material and the cement by which they are united and permeated appear to become one homogeneous mass that flexes as a single piece. The adhesive layer between the pieces or sheets renders the resultant product waterproof.

Certain fibrous materials, such as certain kinds of leather, chrome-tanned or other upper leather, for example, which lack resiliency and have a tendency to stretch, become unstretchable and gain resiliency when treated by my process, which is a distinct advantage in the case of many uses to which my product may be applied. It will thus be seen that by my process, greater durability, toughness, compactness may be imparted to leather or similar fibrous materials, than that possessed thereby before treatment. Furthermore, the leather or other fibrous material produced by this process is cement and oil-impregnated and characterized throughout by a fibrous, cellular structure, the size and number of the air cells depending in part on the extent to which the condensing process has been carried out, the process thus rendering the material substantially and permanently water-repellent, while imparting thereto some degree of porosity, so that it possesses an advantage over material of other nonporous, water-repellent or water-proof substances, such for example as rubber. Apparently the fibers become incased with the cement after the material has been immersed, without necessarily wholly filling the interstices between the fibers or wholly expelling the air from within the same.

It will thus be seen that by my process, durability, toughness, compactness and water-repellent qualities may be imparted to cheap or inferior grades of leather so as to make them available for uses and purposes not heretofore possible, and as equal or better substitutes for leather of more expensive grades. Thus, in the case of chrome-tanned leather for example, the normally porous and relatively loose structure of the leather becomes so charged with the cement that the leather has its fibrous structure compacted into a homogeneous, cement-bound, fibrous body. The cement adds to the initial strength of the union of the fibers, but because of the oil still leaves the product flexible. The cement also adds its strength to the strength of the fibers, producing a homogeneous, compact body which can be worked in substantially the same manner as ordinary vegetable-tanned sole leather.

Leather treated by my process will buff and burnish to the same high degree as any other leather and will take quite as perfect a finish, upon its surfaces or edges, when treated by any usual burnishing or finishing process, and will retain that finish.

It will be understood that the terms "sheet" and "sheet material" used in the specification and claims, are used in their broad and comprehensive sense, as including for example any material such as leather, felt, or any textile, woven, or other permeable material in the web or piece.

It has been found that in some cases it is preferable to subject the leather to a degreasing process, in order to remove therefrom any excessive or undesirable oil or grease, or soap, before treating the leather by my process. Any usual or well-known degreasing process may be employed for this purpose, such for example as immersing the leather for the required length of time in a bath of naphtha or benzin or other suitable agent. In the case of textile fabrics the best results are obtained with unsized materials.

While I have herein described one illustrative example of my improved product and the several steps by which one form of my product may be carried out, it is to be understood that my invention is not limited to the exact details specified or any of them, but that these may be varied within wide limits without exceeding the true scope of my invention which is definitely set forth by the claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The method of applying a sheet of leather or other permeable or fibrous material to another sheet of material, which is characterized by drying said sheets; impregnating one throughout with a cement containing a cellulose derivative and a non-oxidizing oil, by immersing it in a heated bath containing said cement in solution; applying to the surfaces of said sheets, by which they are to be united, a coating of cement also containing a cellulose derivative and a non-oxidizing oil; allowing said coatings to dry; applying to one of said surfaces a coating of adhesive cement; superimposing said surfaces while this coating of cement is still tacky; and compacting and cementing said sheets together by the application of pressure.

2. The method of applying a sheet of leather or other permeable or fibrous material to another which is characterized by drying said sheets; impregnating them throughout with a cement comprising a cellulose derivative and a non-oxidizing oil, by immersing them in a heated bath containing said cement in solution; applying to one surface of said sheets a coating of cement also containing a cellulose derivative and a non-oxidizing oil; allowing said coatings to dry; applying to one of said

HOUSE SAFETY FILM

cement-coated surfaces a coat of adhesive cement; superimposing said surfaces while this coating is still tacky; and compacting and cementing said sheets together by the application of pressure.

3. The method of applying a sheet of leather or other permeable or fibrous material to another sheet of material, which is characterized by degreasing the sheet to be applied; drying said sheets; impregnating one throughout with a cement containing a cellulose derivative and a non-oxidizing oil, by immersing it in a heated bath containing said cement in solution; applying to the surfaces of said sheets, by which they are to be united, a coating of cement also containing a cellulose derivative and a non-oxidizing oil; allowing said coatings to dry; applying to one of said surfaces a coating of adhesive cement; superimposing said surfaces while this coating of cement is still tacky; and compacting and cementing said sheets together by the application of pressure.

4. As a new article of manufacture a sheet of leather or other material having applied thereto a water-repellent, wear-resisting member, comprising a sheet or layer of leather or other fibrous or permeable material, impregnating throughout with a cement containing a cellulose derivative and a non-oxidizing oil and cemented to the first-named sheet by an adhesive cement.

5. As a new article of manufacture a sheet of leather or other material having applied thereto a water-repellent, wear-resisting member, comprising a sheet or layer of leather or other permeable or fibrous material, impregnated throughout with a cement containing a cellulose derivative and a non-oxidizing oil, and having its fibrous structure compacted into a cement-bound flexible body and being cemented to said first-named sheet by an adhesive cement.

6. As a new article of manufacture a sheet of leather or other material having applied thereto a water-repellent, wear-resisting member, comprising a sheet or layer of leather or other fibrous or permeable material, impregnated throughout with a cement containing a cellulose derivative and a non-oxidizing oil and cemented to the first-named sheet by an adhesive cement containing similar materials to that used to impregnate said sheet.

In testimony whereof I have signed my name to this specification.

JOSEPH J. BYERS.

BLANK

PAGE

UNITED STATES PATENT OFFICE.

LAWSON B. WILSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

NON-CONDUCTING PLASTIC COMPOSITION OR CEMENT KNOWN AS PLASTIC ENAMEL.

1,389,084. Specification of Letters Patent. Patented Aug. 30, 1921.

No Drawing. Application filed May 7, 1920. Serial No. 379,548.

To all whom it may concern:

Be it known that I, LAWSON B. WILSON, a citizen of the United States, residing at 1203 F street northwest, in the city of Washington, in the District of Columbia, have invented a new and useful Non-Conducting Plastic Composition or Cement Known as Plastic Enamel, of which the following is a specification.

This application is a continuation in part of my application Serial Number 354,232, filed January 20, 192.

The object of my invention is the production of a plastic non-conducting composition or cement known as plastic enamel to be applied to the surfaces of broken objects requiring repair or mending, and for use as an adhesive agent to mend or repair such useful articles as ornaments, dishes, glassware, furniture, wood-work, metals, false-teeth, shoes, rubbers, leaks in gas and water pipes, clothing, shirts, canvas fabrics, auto-tops and seats, build up worn threads, leaks in boats, stiffen, repair and make waterproof, canvas for use on airplanes, etc.

My composition contemplates the use of a preferably gelatinized cellulose ester or other derivative, a solvent therefor, and a phenol. As examples of the cellulose ester or other derivative I find that any ester such as the nitrate or acetate, butyrate etc., or an ether such as the ethyl ether and others as found in Lilenfeld U. S. Patent 1188376 may be used. It is to be understood that cellulose acetate and the cellulose ethers are considered to be equivalents of the nitrocellulose specified in the claims.

As solvents I may use any of the various well known solvents in this art, examples of which are acetone, alcohols, amyl acetate, fusel oil, anilin, nitrobenzol, acetic acid, various essential oils, etc., these solvents being used singly or in combination as phenols.

As phenols, I find phenol, the various cresols, naphthols, etc. to have utility in this connection.

In one exemplification of my composition I find that celluloid, acetone and phenol give a very valuable composition for general purposes. These components may be used in the following proportions:—

Celluloid	4 parts
Acetone	5 parts
Phenol	3 parts

volume.

I find that these proportions are well calculated to give an excellent cementing material for general use. This example is given merely to comply with the statutory requirements, whence it is to be understood that my invention in its broad aspects is not in any way limited thereby.

To secure special properties of advantage under particular circumstances I have found that softening agents, fillers, and pigments may be used.

As softening and plasticizing agents the following are found desirable: camphor, castor oil, naphthalene and its derivatives such as the chlorids, organic esters such as ethyl acetate, inorganic esters such as triphenyl phosphate, molasses, etc.

As fillers, shellac, gums and resins of various kinds, balsam, etc. or inorganic fillers such as heavy spar, calcium carbonate etc. may be used.

For the purpose of coloring the material as desired any dye or pigment, organic or inorganic may be used.

For the purpose of fixing leaks in boats, and holes in shoes or filling up depressions, etc., the composition comprising nitrocellulose, a phenol and a solvent, is poured into a bottle containing pellets of cotton of the size ranging from a one cent piece to a twenty-five cent piece. When this is done the cotton thereby becomes completely saturated with the plastic enamel and may be applied to repair a leaky boat by placing the saturated cotton tightly between the cracks and permitting it to set until hard. In order to make it more secure and permanent it is advisable to pour plastic enamel over the cotton. Good results are obtained by applying small quantities at a time, applying subsequent coats or layers after the first coat has hardened. The same method is pursued in fixing holes in shoes.

This composition of ingredients containing the aforementioned chemicals may be made in different colors by adding pigments such as aluminum, gold, carmine, lampblack, oxid of zinc, etc. By adding pigments, the viscosity of the composition is increased.

My composition is light when set; is a very efficient non-conductor of heat and cold; is impervious to water, hot or cold; adheres to any dry surface, and as a whole possesses to a high degree properties which makes a useful cement for use in households, machine shops, dental offices, and for other use-

Page Tightly Bound

1040

ful commercial purposes. My composition is useful for the making of bridge work, plates, partial plates, plumpers, tightening old sets of teeth, mending cracked plates, and adding teeth to broken sets.

Attempts have been made to produce cementing compositions previously, but they have all fallen short of the admirable materials produced by me because of one of two reasons: first, because they do not use phenols, or second, because they have failed to use a gelatinized cellulose derivative. The first compositions, of course, fall short of that used by the applicant. The second appears to have failed because there was no realization of the valuable properties of a gelatinized cellulose derivative. In such form, the gelatinized cellulose is much more susceptible to chemical action, and I believe that in this form, when treated with such materials as acetone and phenol, there is a relatively slow tendency to form condensation products. However, whatever the action may be, I find that by my composition I have been able to secure unique properties not before known in this art. Obviously by varying the proportions of the materials the viscosity of the mixture can be controlled.

I claim:

1. A nitrocellulose composition containing celluloid, four parts; acetone, five parts; phenol, three parts, all by volume.

2. A cementing composition comprising the following:—

Nitrocellulose	4 parts
Acetone	5 parts
Phenol	3 parts

all by volume.

L. B. WILSON.

Reissued Nov. 29, 1927. Re. 16,803

UNITED STATES PATENT OFFICE.

EDMUND M. FLAHERTY, OF PARLIN, NEW JERSEY, ASSIGNOR TO E. I. DU PONT DE NEMOURS & COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

LOW-VISCOSITY LACQUER AND FILM PRODUCED THEREFROM.

No Drawing. Original No. 1,629,999, dated May 24, 1927, Serial No. 471,931, filed May 23, 1921. Application for reissue filed September 19, 1927. Serial No. 220,623.

This invention relates to low viscosity lacquers and films produced therefrom, and more particularly to lacquers made from cellulose esters or nitrates having a greatly reduced viscosity and containing resins or oils that will impart such qualities to the lacquers that, upon drying in two or three coats, films will result that will be hard, durable, tough, and adhesive, together with other valuable properties.

It is an ultimate object of my invention to provide a film whose principal constituent will be a cellulose nitrate, which film will possess the characteristics of hardness, durability, toughness, transparency, freedom from acidity, lustre, and capability of adhesion to a surface to be coated; and which will at the same time be built up of only two or three layers or coats. A further object in this connection is to utilize cellulose nitrates which have been greatly reduced in viscosity, but which have not been reduced to the point that the nitrogen content is degraded and the transparency and solubility of the cellulose nitrate impaired. A further object is to prepare lacquer and enamel compositions that will, upon drying, provide a film as aforesaid possessing a continuous unbroken appearance. Further objects of the invention will appear as the following description proceeds.

According to my invention pyroxylin solutions, and particularly lacquers, having an abnormally high nitrocellulose content in conjunction with a suitably low viscosity are produced by subjecting pyroxylin mixtures of the character hereinafter described, for a prolonged period, say from one to three weeks, preferably at ordinary room temperature, to the action of a metal salt of a weak acid, for example an alkali-forming metal acetate. The discovery of the action of salts of this kind on the viscosity of pyroxylin solutions is described in the patent of Earle C. Pitman No. 1,636,319, and the application of this discovery to the reduction of viscosity of pyroxylin solutions is claimed broadly therein. By a particular application of this discovery to high percentage pyroxylin solutions, I have found it practicable to produce solutions, such as lacquers and colored enamels, of such a high pyroxylin content that they will deposit in two coats a film as heavy and satisfactory as the ordinary solutions do in four coats or more.

My invention may be illustrated in detail by the following examples:

I. I first make up a solution of from 25 to 30% pyroxylin in suitable solvents. A typical pyroxylin base solution for this purpose may be made according to the following formula:

	Parts.
Amyl acetate	11
Amyl alcohol	5
Acetone	35
Toluene	14
Denatured alcohol	5
Pyroxylin	28

To this mixture is added .56 part by weight of crystalline sodium acetate preferably dissolved in methyl alcohol. The amount of sodium acetate added may with advantage be from about 0.1 to 3% of the weight of pyroxylin in the solution; I preferably use 2%.

The resulting mixture is allowed to stand several weeks in a warm room and at the end of this time the viscosity is found to have dropped to a very low point, too low even for most purposes. I then add a slight amount of heavy viscosity pyroxylin which brings the solution viscosity up to a suitable working point where it stays indefinitely, there being no further action of the sodium acetate. To the solution containing a very high percentage of pyroxylin I now add suitable gums, oils and colors to impart extra adhesiveness, flexibility and shade as desired. Thus, after the viscosity has been reduced to a minimum and brought back to a suitable point, a lacquer can then be prepared by making a mixture containing 56% of this base solution, 9% of castor oil and 35% of a 50% gum solution in suitable solvents. This gum may be dammar, shellac or any of the other common gums used in lacquers. Dammar may first be dissolved in a mixture of toluene and benzene. Shellac may be used in the form of its solution in alcohol. Instead of castor oil, various other

vegetable oils, such as blown cotton-seed oil, may be added to impart flexibility to the coating.

In a similar way a colored enamel can be made from the original base solution by the addition of pigments ground in oil.

II. Instead of preparing the base solution of high percentage pyroxylin and correct viscosity in two steps, I may prepare it in one step by mixing all the pyroxylin with the solvent at the start, adding about 2%, based on the weight of pyroxylin, of sodium acetate, and allowing to stand, until the reduction in viscosity has progressed to the desired extent. The amount of pyroxylin added in this alternative procedure may be such, for example, that the resulting mixture will contain from about 30 to 40% of pyroxylin. After adding the sodium acetate the mixture is preferably allowed to stand at room temperature for about three weeks. Where less than 2% of sodium acetate is used, a longer time will be required.

By following the procedure set forth in the above examples a 25 to 40% pyroxylin solution may be obtained having a viscosity below 25,000 centipoises, as determined in the Stormer viscosimeter, at 28° C., 25,000 centipoises being practically the upper limit for any commercial solution which is to be used for coating without thinning. A centipoise is a c. g. s. unit of viscosity, water being about 1 centipoise at 20.2° C. Such solutions will, as a rule, be considerably diluted with solvents before being used in spraying or brushing surfaces to be coated.

In place of sodium acetate various other substances may be used as viscosity-reducers, either singly or two or more together. The alkali-metal formates and acetates are especially useful, and the alkaline earth metal salts, as well as the cadmium, cobalt, and zinc salts, of these same acids have a marked effect on the viscosity of pyroxylin solutions. In general, of the salts of organic acids, the water-soluble salts of the lower monobasic aliphatic acids appear to act as the best viscosity-reducers. Salts of some inorganic acids also exhibit this property, as for example the alkali-metal borates, iodides, sulphocyanates, etc.

The pyroxylin solutions coming within the purview of my invention are, of course, not confined to the particular solvent mixture given in the above examples. Thus instead of amyl acetate and amyl alcohol, I may use butyl acetate and butyl alcohol, respectively; and in place of toluene, the other benzenoid hydrocarbons such as benzene and xylene may be used. In fact any of the well-known solvent mixtures may be substituted for the one mentioned in the above examples without departing from my invention, said mixtures usually comprising a diluent such as benzene.

The maximum pyroxylin content of pyroxylin solutions which have heretofore been of practical use for coating purposes, has been about 15%, whereas the solutions made according to my invention will contain as a rule, if undiluted, more than 20% of pyroxylin, and in many cases between 25 and 40%. The above figures of 15% and 20% have particular reference to pyroxylin which has been dissolved in a mixture of solvents instead of in a single solvent. Such solutions may, of course, be diluted with solvents for spraying or brushing purposes.

The new lacquer is differentiated from cellulose nitrate lacquers heretofore known in that it contains at least 25% and sometimes from 50 to 150% more cellulose nitrate at a given viscosity than does a corresponding lacquer of the same viscosity and having the maximum content of cellulose nitrate which has not been subject to the above subscribed treatment with sodium acetate or a similarly functioning agent.

My new lacquer may be differentiated from prior lacquers by stating that the viscosity-characteristic of the nitrocellulose in the new lacquer is substantially lower than that of the nitro-cellulose contained in the lacquers heretofore known. This distinctive feature of the new lacquer makes it possible to identify the same irrespective of the extent to which the new lacquer is modified or thinned by the addition of gums, volatile solvents or diluents, etc. The above-mentioned viscosity-characteristic of the pyroxylin component of the new lacquer may advantageously be defined in terms of the viscosity that it imparts to some convenient solution taken as a standard when measured by a standard method. I have found it desirable to express this inherent viscosity-characteristic in terms of the viscosity possessed by a 16 ounce ethyl acetate solution of the reduced viscosity nitrocellulose when measured by the Stormer viscometer, at 28° C. Thus, a 25% pyroxlin solution having the solvent composition set forth in Example I above, and having a viscosity of 25,000 centipoises, as determined in the Stormer viscometer at 28° C., using a 500 g. weight, contains nitrocellulose which, when dissolved in toto in pure ethyl acetate (over 99.5%) to form a 16 oz. solution, imparts to said ethyl acetate solution a viscosity of about 1200 centipoises when tested in said viscometer at 28° C. In the preferred embodiment the lacquers and base solutions constituting my invention are consequently clearly differentiated from the lacquers of the prior art by containing, for their pyroxylin content, nitrocellulose whose inherent viscosity-characteristic is such that when said nitro cellulose is dissolved in pure ethyl acetate to form a 16 oz. solution, said solution possesses a viscosity of less than 1200 centipoises when

tested in the Stormer viscometer at 28° C. (using a 500 g. weight), and generally the said lacquers and solutions are distinguished over the prior art by containing a nitrocellulose whose inherent viscosity characteristic is such that at above 20% concentration in a mixed solvent of the character described in Example I, it will provide a solution below 25,000 centipoises in viscosity.

I use the expression (1) "16 oz. solution" and (2) "16 oz. ethyl acetate solution" in the sense customary in the art of pyroxylin solutions, that is, to mean (1) 16 ounces of nitro-cellulose dissolved in 1 gallon of solvent, and (2) 16 ounces of nitrocellulose dissolved in 1 gallon of ethyl acetate, respectively, at ordinary room temperature (22° C.).

When the new solutions hereinbefore described are used to coat various kinds of surfaces, particularly rigid metal or wood surfaces, to provide films thereon, either by spraying, brushing or dipping, the resulting films will be hard, durable, lustrous, transparent, tough, and continuous, and will adhere to the underlying surface. These films may be made of proper and sufficient thickness by the application of two or three coats, whereas in former practice where high viscosity nitrocellulose was used, a much larger number of coats had to be applied to obtain a film of sufficient thickness. My new films are particularly characterized by their toughness, i. e., the absence of any brittleness, this result being achieved by the admixture of the ingredients of the lacquer or enamel, with nitrocellulose, whose viscosity has been reduced by means of sodium acetate, or its equivalent in function, whereby the nitrogen content is not seriously reduced and correspondingly the resulting solubility of the nitrocellulose and toughness of the film remains substantially unimpaired. The use of the sodium acetate, which has an alkaline reaction, and the absence of acidic products in the low viscosity solutions or lacquers, permits of the addition of basic pigments without liability of incurring undesirable reactions.

It will, therefore, be apparent that I have provided lacquers and enamels containing a much higher proportion of nitrocellulose for a given viscosity than was hitherto possible, without in any way impairing the aforesaid characteristics of the film to be prepared, while at the same time making possible the easy application of these lacquers and enamels upon surfaces to be coated. As a result, films of the aforesaid excellent characteristics may be prepared, by the application of only two or three coats of my new lacquers or enamels, whereas in the old art it was necessary to put on many more coats in order to build up a film of proper and suitable thickness, this latter difficulty having been due to the necessary low nitrocellulose content of the prior art solutions at a working viscosity.

As many apparently widely different embodiments of this invention may be made without departing from the spirit thereof, it is to be understood that I do not limit myself to the foregoing examples, except as indicated in the appended claims.

I claim:

1. A pyroxylin coating composition comprising nitrocellulose, a softener therefor, and a volatile nitrocellulose-solvent, the viscosity-characteristic of the nitrocellulose, expressed as the viscosity of a 16 oz. solution thereof in C. P. ethyl acetate, being less than 1200 centipoises when measured by the Stormer viscometer at 28° C.

2. A pyroxylin coating composition comprising nitrocellulose, a softener therefor, a gum, and a volatile solvent for the three first mentioned ingredients, said nitrocellulose, when 16 ounces thereof is dissolved in 1 gallon of pure ethyl acetate, yielding a 16 oz. solution whose viscosity is less than 1200 centipoises when measured by the Stormer viscometer at 28° C.

3. A pyroxylin coating composition comprising nitrocellulose, a volatile nitrocellulose-solvent, a softener for the nitro-cellulose, a gum, and a pigment, said nitrocellulose, when 16 ounces thereof is dissolved in 1 gallon of pure ethyl acetate, yielding a 16 oz. solution whose viscosity is less than 1200 centipoises when measured by the Stormer viscometer at 28° C.

4. A coating composition comprising cellulose nitrate having an inherent viscosity characteristic such that at 25% concentration in a mixed solvent of the composition here inbefore described it will provide a solution below 25000 centipoises in viscosity, and comprising also a resin and a solvent.

5. A composition comprising cellulose nitrate having a viscosity, as determined upon a 16 oz. solution of ethyl acetate with the Stormer viscometer at 28° C., of less than 1200 centipoises, and comprising also a resin and a solvent.

6. A coating composition comprising cellulose nitrate having an inherent viscosity characteristic such that at 25% concentration in a mixed solvent of the composition hereinbefore described it will provide a solution below 25000 centipoises in viscosity, and comprising also a resin, an oil, and a solvent.

7. A composition comprising cellulose nitrate having a viscosity, as determined upon a 16 oz. solution of ethyl acetate with the Stormer viscometer at 28° C., of less than 1200 centipoises, and comprising also a resin, and solvents to bring the viscosity of the composition below 25000 centipoises.

8. An article covered with a hard, dura-

ble, tough, and adhesive film formed from a composition comprising a cellulose nitrate having an inherent viscosity characteristic such that at 25% concentration in a mixed solvent of the composition hereinbefore described it will provide a solution below 25000 centipoises in viscosity, and comprising also a resin.

9. A composition comprising cellulose nitrate having a viscosity, as determined upon a 16 oz. solution of ethyl acetate with the Stormer viscometer at 28° C., of less than 1200 centipoises, and comprising also a solvent and a resin, said composition being adapted upon drying of not over three coats to form a hard, durable, tough, and adhesive film.

10. A composition comprising cellulose nitrate having a viscosity, as determined upon a 16 oz. solution of ethyl acetate with the Stormer viscometer at 28° C., of less than 1200 centipoises, and comprising also a solvent, a resin, and a basic pigment, said composition being non-acidic whereby no reaction occurs with said pigment, and said composition being adapted upon drying of not over three coats, to form a hard, durable, tough, and adhesive film.

11. An article covered with a hard, durable, tough, and adhesive film formed from a composition comprising a cellulose nitrate having a viscosity, as determined upon a 16 oz. solution of ethyl acetate with the Stormer viscometer at 28° C., of less than 1200 centipoises, and comprising also a resin and a solvent.

12. An article covered with a hard, durable, tough, and adhesive film formed from a composition comprising a cellulose nitrate having a viscosity, as determined upon a 16 oz. solution of ethyl acetate with the Stormer viscometer at 28° C., of less than 1200 centipoises, and comprising also a resin, an oil, and a solvent.

13. A composition comprising cellulose nitrate having an inherent viscosity characteristic such that at above 20% concentration in mixed solvent of the composition hereinbefore described it will provide a solution below 25000 centipoises in viscosity, and comprising also a resin and a solvent.

14. A composition comprising cellulose nitrate having an inherent viscosity characteristic such that at above 20% concentration in mixed solvent of the composition hereinbefore described it will provide a solution below 25000 centipoises in viscosity and comprising also a resin and solvents to bring the viscosity of the total composition below 25000 centipoises.

15. An article covered with a hard, durable, tough, non-shrinking and adhesive film formed from a composition comprising a cellulose nitrate having a viscosity characteristic such that at above 20% concentration in mixed solvent of the composition hereinbefore described it will provide a solution below 25000 centipoises in viscosity, and comprising also a resin.

16. An article coated with a hard, durable, tough, and adhesive film formed from a composition containing a resin, a softener, and a cellulose nitrate having a low viscosity characteristic such that at above 20% concentration in mixed solvent of the composition hereinfore described it is capable of producing a solution below 25000 centipoises in viscosity.

17. A rigid article coated with a hard, durable, tough, and adhesive colored enamel formed from a composition containing a resin and a cellulose nitrate having an inherent viscosity characteristic such that at 25% concentration in a mixed solvent of the composition described in Example I the latter will have a viscosity below 25000 centipoises.

In testimony whereof, I affix my signature.

EDMUND M. FLAHERTY.

DISCLAIMER

Re. No. 16,803.—*Edmund M. Flaherty*, Parlin, N. J. LOW-VISCOSITY LACQUER AND FILM PRODUCED THEREFROM. Patent dated November 29, 1927. Disclaimer filed May 26, 1932, by the assignee, *E. I. du Pont de Nemours & Company*.

Hereby enters this disclaimer to that part of said specification and claims which is in the following words: to wit: "and generally the said lacquers and solutions are distinguished over the prior art by containing a nitrocellulose whose inherent viscosity characteristic is such that at above 20% concentration in a mixed solvent of the character described in Example I, it will provide a solution below 25,000 centipoises in viscosity". (P. 3, 11.2–9.)

"13. A composition comprising cellulose nitrate having an inherent viscosity characteristic such that at above 20% concentration in mixed solvent of the composition hereinbefore described it will provide a solution below 25,000 centipoises in viscosity, and comprising also a resin and a solvent.

"14. A composition comprising cellulose nitrate having an inherent viscosity characteristic such that at above 20% concentration in mixed solvent of the composition hereinbefore described it will provide a solution below 25,000 centipoises in viscosity and comprising also a resin and solvent to bring the viscosity of the total composition below 25,000 centipoises.

"15. An article covered with a hard, durable, tough, nonshrinking, and adhesive film formed from a composition comprising a cellulose nitrate having a viscosity characteristic such that at above 20% concentration in mixed solvent of the composition hereinbefore described it will provide a solution below 25,000 centipoises in viscosity, and comprising also a resin.

"16. An article coated with a hard, durable, tough, and adhesive film formed from a composition containing a resin, a softener, and a cellulose nitrate having a low viscosity characteristic such that at above 20% concentration in mixed solvent of the composition hereinbefore described it is capable of producing a solution below 25,000 centipoises in viscosity."

[*Official Gazette June 14, 1932.*]

BLANK

PAGE

1046

Patented Sept. 15, 1925. 1,554,033

UNITED STATES PATENT OFFICE.

EBENEZER EMMET REID, OF BALTIMORE, MARYLAND, ASSIGNOR TO E. I. DU PONT DE NEMOURS & COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

CELLULOSIC COMPOSITION.

No Drawing. Application filed February 4, 1921. Serial No. 442,474.

To all whom it may concern:

Be it known that I, EBENEZER EMMET REID, a citizen of the United States, and a resident of Baltimore, in the State of Maryland, have invented certain new and useful Cellulosic Compositions, of which the following is a specification.

This invention relates to cellulosic compositions containing as an essential constituent a neutral butyl phthalate, and has reference more particularly to cellulose nitrate plastics containing dibutyl phthalate.

In the practical application of dissolved cellulose and soluble cellulose compounds, including cellulose esters, to the various arts and manufactures, such as the production of films, varnishes, filaments, plastic masses, etc., it is customary to blend or mix or otherwise add to the cellulose ester or to its solution, certain non-cellulosic materials commonly termed softeners, camphor substitutes or the like, such additions being made for the purpose of imparting to the cellulose or its compounds some desired properties, such as non-inflammability, plasticity under heat, flexibility, etc. These softeners, camphor substitutes and the like, which I shall hereinafter for convenience designate as "modifiers," function in many different ways in cellulosic combinations; and the properties which they impart to the product depend upon and are determined by both the physical and the chemical properties of the particular modifier used. For example, if a modifier is non-inflammable, it will impart this property to the cellulose to a degree which is of course dependent upon the character of the modifier and the proportion added; if the modifier is relatively non-volatile its effect will be more permanent than that of a more volatile modifier; if the modifier is a solvent under suitable conditions for the cellulose material, it will as a rule impart greater flexibility than if it is a non-solvent; and particularly, modifiers which are liquid at normal temperatures will, other things being equal, impart greater flexibility than those which are solid at normal temperatures.

I have found that the neutral esters of phthalic acid (that is, ortho-phthalic acid) in which at least one of the alcohol radicals is a butyl group are more suitable as modifiers than most substances which have heretofore been proposed for this purpose.

By the expression "neutral butyl phthalates" I include not only a dibutyl phthalate but also the mixed esters such as methyl butyl, ethyl butyl, and propyl butyl, phthalates. I prefer to use esters of the kind above indicated in which the butyl radical is that of normal butyl alcohol rather than of isobutyl alcohol, and specifically, di (normal) butyl phthalate.

The procedure which may be followed to produce the above-mentioned butyl phthalic acid esters may be illustrated by the following examples:—

From phthalic anhydride.

Three parts by weight of phthalic anhydride are added to 3½ parts of normal butyl alcohol (B. P. 115–117° C.) and the mixture heated to 117° C. for eight hours. This completes the first reaction with the formation of mono-butyl phthalate which remains dissolved in the excess alcohol. Three per cent by weight of dry hydrogen chloride is dissolved in the mixture, which is heated to 117° for eight hours. The second reaction is accompanied by the separation of a layer of water. This is separated and the heating continued for an additional eight hours. The resulting liquid product is first washed with water to remove the hydrochloric acid; then with strong sodium carbonate to remove the mono-butyl phthalate and any free phthalic acid; and finally with water several times until neutral. The dibutyl phthalate is purified from alcohol and dried by passing a current of air through the liquid heated to 160° C. The product is a liquid, odorless, slightly yellow in color and may be obtained water white by distilling under diminished pressure. The yield is 83.6% of the theoretical. Boiling point under 29 mm. pressure is 210° C.

From phthalic acid.

The use of phthalic acid requires a catalyst for both stages of the reaction. One part by weight of phthalic acid is mixed with 2.5 parts of normal butyl alcohol (B. P. 115–117° C.). Three per cent by weight of dry hydrogen chloride is dissolved in the mixture, which is heated to 117° for twenty-four hours. The water which forms as a lower layer is drawn off from time to time and more hydrogen chloride added toward the latter part of the

Page Tightly Bound

heating. The product is washed and purified in the same manner as described above. The yield from phthalic acid is 79.2% of the theoretical.

Mono-butyl phthalate.

Mono-butyl phthalate is obtained as a by-product from either of the above methods and is recovered by acidifying the sodium carbonate wash waters. This can be utilized in the preparation of di-butyl phthalate or for the purpose of making mixed esters. It is a white crystalline solid melting at 73–74° C., soluble in all the usual organic solvents and in alkali. Recrystallized from acetone or alcohol it is obtained in large rhombic plates.

The cellulosic compositions, and particularly the cellulose esters such as the acetate and nitrate, containing a butyl phthalic acid ester as a modifier have a practical application in many arts as, for example, in artificial leather, celluloid, lacquers, photographic film, etc.

In preparing the new cellulosic compositions, the butyl phthalic acid ester may be used in various proportions depending upon the result sought, as will be readily understood. As one illustrative example of the practice of the invention, I may incorporate thirty parts by weight of dibutyl phthalate with 100 parts of cellulose nitrate.

For producing flexible films, a suitable solution may be prepared by dissolving cellulose nitrate and dibutyl phthalate in the ordinary solvents such as ethyl acetate, benzene, methyl or ethyl alcohol and acetone, etc. Pigments and colors may be incorporated, and also, in the production of plastics, a suitable amount of a stabilizer, such as urea.

The properties of di (normal) butyl phthalate (and in general of the neutral butyl phthalates above described) which make it especially valuable in pyroxylin compositions may be listed as follows:

1. It is a solvent for pyroxylin.
2. It is a liquid at ordinary temperatures and does not crystallize when cooled very much below room temperature, for example to –17° C.
3. It has a very low volatility at ordinary temperatures.
4. It undergoes practically no change on storage either in bulk or in a pyroxylin film.
5. It is colorless.

The neutral butyl phthalates are new substances and are claimed as such in my co-pending application Ser. No. 428,018 filed December 3, 1920.

I claim:—

1. A composition comprising essentially a cellulose ester and, as a modifier therefor, a neutral butyl phthalate.
2. A composition comprising essentially a cellulose ester and, as a modifier therefor, di-butyl phthalate.
3. A composition containing a cellulose ester and a neutral (normal) butyl phthalate.
4. A composition containing a cellulose ester and a di (normal) butyl phthalate.
5. A composition containing cellulose nitrate and a neutral butyl phthalate.
6. A composition containing cellulose nitrate and a neutral normal-butyl phthalate.
7. A composition containing cellulose nitrate and di (normal) butyl phthalate.
8. A film comprising a cellulose ester in admixture with a neutral butyl phthalate.
9. A film comprising a cellulose ester in admixture with di (normal) butyl phthalate.

In testimony whereof I affix my signature.

EBENEZER EMMET REID.

BLANK

PAGE

1048

E. C. & V. E. SMITH.

SEALING MATERIAL FOR BOTTLES AND THE LIKE.

APPLICATION FILED SEPT. 27, 1909.

983,319. Patented Feb. 7, 1911.

Fig. 1.



Fig. 2.



Witnesses:
Wm. A Cauttland
Henry C. Workman

Eugene C. Smith
and
Victor E. Smith
Inventors
By their Attorneys Knight Bros.

UNITED STATES PATENT OFFICE.

EUGENE C. SMITH AND VICTOR E. SMITH, OF PROVIDENCE, RHODE ISLAND.

SEALING MATERIAL FOR BOTTLES AND THE LIKE.

983,319. Specification of Letters Patent. Patented Feb. 7, 1911.

Application filed September 27, 1909. Serial No. 519,652.

To all whom it may concern:

Be it known that we, EUGENE C. SMITH and VICTOR E. SMITH, both citizens of the United States, and residents of the city and county of Providence, in the State of Rhode Island, have invented new and useful Improvements in Sealing Materials for Bottles and the Like; and in order that those skilled in the art may understand and practice our invention we give the following specification.

We have illustrated our invention in the accompanying drawings, of which—

Figure 1 is a cross section view of the sealing material, and Fig. 2 is a similar view of a metallic cap such as is used for sealing bottles having a sealing disk constructed in accordance with our invention inserted therein.

Our invention relates to sealing material for hermetically closing bottles and similar vessels to preserve their contents, and it has for its object to provide a sealing material for the purposes stated which shall possess advantages over the materials at present generally known and commonly used.

Our invention is more particularly intended to provide an improved sealing material for use in connection with metallic caps which are crimped upon the necks of bottles, which sealing material shall be easy and inexpensive to manufacture and which shall form a perfect gas and air tight seal to prevent the contents of the bottles from deterioration, and which shall be unaffected by the conditions involved in capping, bottling and sterilization, and also unaffected by the liquids or contents inclosed in the bottles, and at the same time impart no flavor or objectionable influence to the same.

Cork has long been regarded as the most satisfactory and efficient sealing material for the purposes stated, but owing to the growing scarcity and increasing cost of the same various expedients have been proposed from time to time to meet this condition. The wide use of the metallic or crown cap while reducing the amount of cork required to form a seal compels the selection of the finest grade of cork, freest from pores, in order to produce a gas or air tight seal. This condition not only involves the expense of the best grade material, but also the expense involved in the process of selection and gives rise to considerable waste. In order to insure gas tight seals of cork and similar material, it was found necessary to back the cork disk or lining of the cap with such material as paraffin paper or the like; but this while adding to the expense did not remedy but only mitigated the difficulty. Various materials other than cork have been proposed but these, so far as we are aware, are generally either too expensive in their production or are inferior to cork as a seal, or deteriorate with age, or do not withstand the conditions occurring in capping, bottling or sterilization, or impart a flavor or odor to the contents of the bottles, or are acted upon by such contents. When the enormous quantity of bottle seals required for use are considered, the item of expense or cost of their production becomes a leading feature for consideration, and when it is further considered that in a large proportion all the materials to be bottled consist of aerated or carbonated liquids, or liquids containing or generating gas under pressure, it will be apparent that a successful sealing material must be low in cost of production and must at the same time form such a perfect seal with the neck of the bottle that no air may enter or gas escape.

Our invention which from careful tests has been found to satisfy and fulfil the above stated conditions and requirements is carried out as follows. We take a sheet of relatively soft compressible felt or fibrous material of about one twelfth of an inch more or less in thickness. For this material we have found satisfactory a specially made compressible felt paper closely resembling blotting paper but preferably softer. This material is represented in Fig. 1 of the drawings on an exaggerated scale as to thickness by the numeral 1. On one side of this compressible fibrous material 1 we secure a sheet of thin but tough and strong fibrous paper. For this thin sheet material, we have found a good Manila paper to give satisfactory results. This thin sheet material is represented in the drawings by the numeral 3. The thin tough sheet 3 is attached to the soft compressible sheet 1 by means of an elastic glue composition, indicated at 2, of such character as will not become hard or brittle upon drying or setting. For this purpose we employ an elastic glue composition made up of glue, glycerin and saccharine material such as sugar or molasses, in about the proportions respectively as they are used in the well

Page Tightly Bound

known printers' roller composition. This elastic glue composition 2 is spread upon the thin sheet material 3, and a number of such sheets coated with said composition may be prepared, to be used as may be necessary. When these sheets are used the glue composition is softened or melted by placing the sheets upon a steam table or hot plate or by heating them in any convenient manner. When the glue has been softened or melted in this manner the thin sheets are applied to the compressible fibrous sheets 1, pressure being applied by means of rollers or otherwise, and the two sheets are united and are then laid aside to dry and set. The outer face of the thin sheet is then coated with a layer of cellulosic varnish, as indicated by numeral 4. For this material we prefer to use a flexible pyroxylin or collodion varnish or the so called celluloid varnish. This coating is applied to such thickness that the same will, when fully dried, be of about two thousandths of an inch thick. When this cellulosic coating is dried, which will take but a few minutes, sealing disks of a size to snugly fit the caps may be stamped therefrom, and are ready for insertion in the caps. It will be understood that the cellulosic varnish coating 4 will in use come in contact with the edges of the mouths of the bottles.

The material produced as above described constitutes a very perfect sealing material for liquids and beverages of all kinds such as are usually bottled and sealed. It forms a practically perfect seal when applied in the usual manner or with the sealing and capping machines usually employed by bottlers, being air and gas tight and successfully sealing the gas contained or generated in gaseous or aerated liquids against escape. The cellulosic coating being flexible and stretchable and impervious to gases, forms a gas and air tight seal and when the seal is applied by the usual bottling apparatus, it forms a perfect gas and air tight seal, the compressible fibrous backing sheet yielding to the pressure of the mouth of the bottle and the cellulose coating being flexible and stretchable, makes close contact about the lips or edges of the mouth of the bottle preventing access of air to, or escape of gases from the contents of the bottle. The cellulose coating is also unaffected by contact with the contents of any liquids or beverages which are customarily put up in bottles for sale and imparts no odor or flavor to such liquids or beverages. The materials employed in the manufacture of our sealing material are such that the same may be produced at a cost below that of cork or of any satisfactory substitute sealing material with which we are acquainted. Our sealing material also withstands a degree of heat as high as 250° F. or a heat which is considerably higher than any degree of heat used in the sterilizing or pasteurizing processes employed in bottling.

We are aware that pyroxylin, celluloid or the like, varnish is, *per se*, old as a varnish or surfacing material, but we are the first, so far as we are aware, to discover that the same possesses properties and characteristics in relation to the sealing or capping of bottles and the like, particularly in combination with other features of our invention, whereby important and useful advantages are obtained, and a sealing material produced which successfully meets the requirements and conditions of a bottle seal, and we therefore claim the employment of the same in this connection broadly.

What we claim is:

1. A sealing material of the character described, comprising a body portion of compressible fibrous material and a layer or facing thereon of flexible cellulosic varnish to contact with the mouth of the vessel to be sealed.

2. A sealing material of the character described, comprising a backing of compressible fibrous material, a relatively thin paper sheet united thereto and a coating or layer of flexible cellulosic varnish on said thin paper sheet.

3. A sealing material of the character described, comprising a body portion of compressible fibrous material and a layer or facing of flexible collodion varnish to contact with the mouth of the bottle to be sealed.

4. A sealing material of the character described, comprising a backing of compressible fibrous material, a relatively thin paper sheet united thereto and a coating or layer of flexible collodion varnish on said thin paper sheet.

5. A sealing material of the character described, comprising a backing of compressible fibrous material, a relatively thin paper sheet united thereto by a flexible glue composition, and a coating or layer of flexible collodion varnish on said thin paper sheet.

6. The combination with a metallic sealing cap of a sealing disk therein, said disk comprising a body portion of compressible fibrous material having an outer layer or facing of flexible collodion varnish.

7. The combination with a metallic sealing cap of a sealing disk therein, said disk comprising a body portion of compressible fibrous material, a facing of thin paper united thereto and an outer coating of flexible collodion varnish on said paper.

EUGENE C. SMITH.
VICTOR E. SMITH.

Witnesses:
ALFRED A. SAUNDERS,
WILLIAM B. BLIFFORD.

BLANK

PAGE

1051

July 19, 1932. A. H. WARTH 1,867,637

CLOSURE AND INTERIOR FACING THEREFOR

Filed Dec. 23, 1930

Fig. 1.

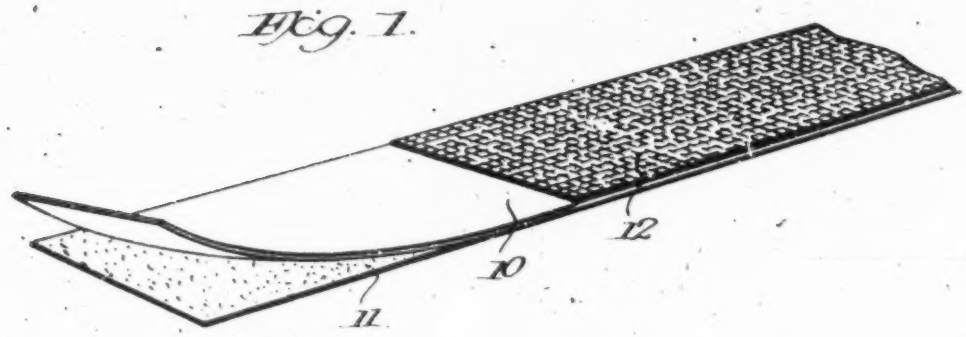


Fig. 4.

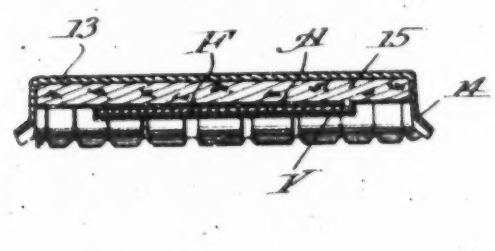


Fig. 3.

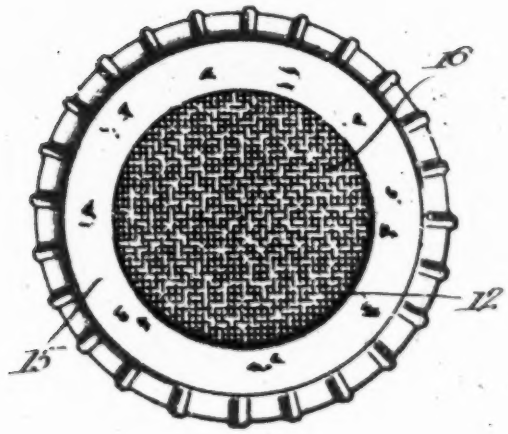


Fig. 2.

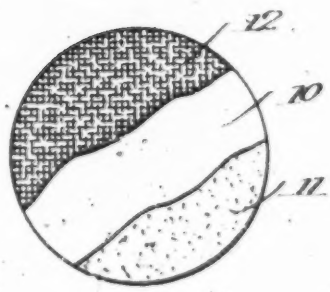
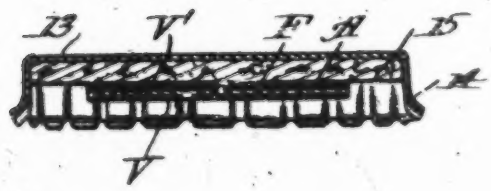


Fig. 5.



Inventor

Albin H. Warth.

By Cushman Bryant & Doby

Attorneys

Patented July 19, 1932

1,867,637

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, INC., OF BALTIMORE, MARYLAND, A CORPORATION OF NEW YORK

CLOSURE AND INTERIOR FACING THEREFOR

Application filed December 22, 1930. Serial No. 504,409.

The present invention relates to closures, and more particularly to an improved interior facing for closures and method of producing the same.

Although the invention is applicable to closures of any type in which an interior facing may be usable, from a more specific aspect it is particularly applicable to closures of the crown type and which have a center spot for facing and protecting from container contents the liner of cushion material.

For center spots, it has been customary to employ various materials, such as aluminum foil, tin foil, and paper or other fibrous material having a gas and liquid impervious coating.

The present invention has as an object the provision of an improved facing of the metal foil type. In crown caps, metal foil has been used as a spot in caps intended for the sealing of mineral waters, soda waters, beers, and other liquids. These metal spots are commonly made of tin foil, or aluminum foil. There are some liquids, however, with which it has not heretofore been practicable to utilize a foil facing, and the present invention seeks to provide an improved facing of metal foil which will effectively resist the action of liquids for which metal foil has been unsuitable as a cap spot or facing.

Moreover, the invention seeks to provide an improved facing which will permit the use of aluminum foil for the capping of liquids with which it has heretofore been practicable to use only tin foil. For certain highly carbonated alkaline and saline waters, the relatively more expensive tin foil spotted or faced caps have been used to the exclusion of other metal foil and of paper. Since closures, particularly those of the crown type, are sold for only a few cents a gross, a saving of only a fraction of a cent per crown per dozen crowns is of considerable importance.

Moreover, for certain liquids, for example those requiring high temperatures for sterilization, metal foil facings are unsatisfactory, particularly if the liquids contain acids such as citric acid, lactic acid, and acetic acid. When subjected to such acids, the foil becomes tarnished, corroded, or even dissolved if the acid is very strong. Aluminum foil tends to corrode or tarnish in the presence of fruit acids, and to be eaten away by minute amounts of alkalies, alkaline earths, and mineral salts, which are present in waters.

The present invention seeks to provide a facing of the foil type, and particularly a facing of aluminum foil, which will be resistant to such alkalies, alkaline earths, and mineral salts, and which will not be easily eaten away by fruit acids, such as are present in ginger ale and other acidulated beverages.

Another object of the invention is to provide a foil facing of distinctive appearance which will facilitate the distinguishing of aluminum and tin foil facings and of the materials when in strip form, and which will also permit the use of foil without the usual foil appearance, thereby enabling this material to be used in instances and where the employment of foil might be objectionable, for example because of the widely recognized non-resistant characteristics of foil. It will be understood that it is frequently very difficult to distinguish aluminum foil and tin foil from one another. Moreover, there is widespread objection to closures with foil facings because of the weakness of this material in the presence of acids and alkalies.

The invention will be described in connection with the manufacture of a closure of the crown type and provided with a center spot. Spot crowns are well known in the art, and are illustrated for example in the patent to McManus, No. 1,339,066, granted May 4, 1920. Although described as applied to crown caps, it will be understood that the invention is applicable to caps of other types, such as screw or lug caps, and is not limited to a cap-facing of smaller diameter than the cap.

Referring to the accompanying drawing, wherein there is shown one embodiment of the invention,

Figure 1 is a perspective view showing the laminated material used in the preferred method of manufacturing the cap.

Figure 2 is a plan view partly broken away

showing the disc formed from the material illustrated in Figure 1.

Figure 3 is an interior face view of a completed cap.

Figure 4 is a cross sectional view, and

Figure 5 is a cross sectional view of a modified form of cap.

In order to produce a cap having a facing of the desired character, it is preferred to utilize a laminated material which is made up in sheet or strip form, and from which the facing may be punched and applied to the cap for assembly in the manner illustrated and described in my Patent No. 1,788,260, granted January 6, 1931.

This material comprises an intermediate layer 10 (Fig. 1) of waterproof material, such as tin or aluminum foil. One surface of the material is coated with a layer of suitable adhesive 11. I prefer an adhesive which is waterproof and, to a certain extent, acid resistant, such as gutta percha or a mixture of gutta percha and other gum. Another adhesive which has been found satisfactory is a mixture of damar resin, turpentine rosin, bodied linseed oil, poppy-seed oil, the mixture being thinned with mineral spirits and permitted to dry after application to the foil. This adhesive, as well as one which includes gutta percha, is normally hard or firm at room temperature, and consequently the spot material can be conveniently handled in strip form, in which form it may be stored in rolls adapted to be used in the cap forming machines. Moreover, such an adhesive will become tacky upon the application of heat, and hence will unite the spot material to the cap upon the application of heat and pressure, which may be simultaneously applied, as by the punch which forms the facing discs or spots from the strip material. Since the adhesive is water-resistant and acid resistant it constitutes an additional layer which will protect the cushion material of the cap should the foil material become weakened or perforated by the alkalies, acids or alcohol in the capped liquids.

Still another adhesive which may be used is one one containing as its principal constituent pitch, preferably fused pitch of a moderately hard or hard consistency having a melting point of more than 140° F. By pitch is meant the residue from the distillate of coal-tar, shale oil, petroleum, or vegetable oil. For coating purposes the pitch may be dissolved in suitable solvents such as benzol or toluol, the solvent being evaporated off in the drying of the coating. The pitch may be also combined with ceresin wax, such as 4 parts pitch, and 1 part ceresin wax, and then thinned out with benzol or toluol. The wax has a tendency to prevent certain grades of pitch being too tacky at low temperatures.

The other surface of the material is provided with a coating 12 of varnish or lacquer, and both sides of the foil may be coated in this manner if the varnish coating is applied before the application of the adhesive. In some instances, the coating of both sides may be found to be desirable. For applying the varnish or lacquer coating the foil may be passed through a bath of the varnish or lacquer, or the coating may be applied by rollers, and thereafter it may be hardened, as by baking at a temperature of about 300° F.

Any suitable varnish may be used, but I prefer a varnish which is acid and alkali resistant. By "resistant" I mean a varnish which will resist the action of alcohol, alkalies and acids in the percentages usually present in beverages or liquids with which the caps are intended to be used. The precise acid and alkali resisting properties of the varnish or lacquer will depend, of course, upon the beverages with which the caps are intended for use, and it will be obvious, of course, to one skilled in the art of producing acid, alkali and alcohol resistant varnishes, that the characteristics of the preferred varnish indicated below may be varied to the extent desired in accordance with the particular purposes of the material.

I have found that for the capping of ordinary beverages containing alkalies and acids, and also alcohol, a varnish comprising a natural gum, such as Zanzibar, Madagascar, or esterized manila gum, together with a relatively large amount of China-wood oil will be very efficient. To make a long oil varnish of this character, I prefer to use thirty-five gallons of oil to one hundred pounds of resinous gum. In such a varnish, metallic driers and plasticizers are added in small amounts, such plasticizers as linseed oil, perilla oil, castor oil, tea seed oil, or lecithin being suitable.

In the manufacture of a foil spot, I have found it advantageous to color the varnish or lacquer, and the use of different and readily distinguishable colors, such as gold and red upon the different types of foil (tin and aluminum) will enable one to determine readily by the color the precise character of the foil. Furthermore, the provision of a colored varnish will conceal the characteristic foil appearance, and thus permit the use of foil in the manufacture of caps for which foil would not ordinarily be regarded as acceptable because of the general impression that a foil spot will not suitably resist acids and alkalies. In order to provide a golden color, for instance, a small amount of gilsonite asphaltum may be incorporated in a varnish of the character above described. The varnish may be brought to the desired consistency by the use of mineral spirits or turpentine substitute.

The foil may be coated either before or after the application of the adhesive, but necessarily preliminary to the application of the

adhesive coating when both sides of the foil are coated with varnish.

By the use of a varnish or lacquer which is resistant to acids (carbonic acid, acetic acid, tartaric acid, citric acid) and which is unaffected by alkalies, alkaline earths and mineral salts, such as sodium chloride, there is provided a foil facing which is suited to the sealing of acidulous beverages which are to be subjected to high temperatures and also to high pressures. A facing of this character is also particularly suited for the sealing of alkaline and saline waters. When coated in this manner, aluminum or other cheap foil can be substituted for tin foil, thereby effecting a substantial economy in the manufacture of the cap.

A cap provided with a spot of this character, namely in which metal foil has its exposed face coated with acid and alkali resistant varnish, is particularly useful in connection with liquids requiring high temperatures for sterilization. For such liquids, paper spot caps even though varnished are not satisfactory, for the reason that varnished paper is permeable, and, therefore, swells and causes the underlying disc or cork to become soggy. As a result, the present invention not only permits the use of cheaper foil, such as aluminum foil for the capping of liquids with which such foils could not heretofore be used, but also permits the use of metal foil spots where paper spots have not been satisfactory even though the paper spots are varnished. That is to say, the varnishing of the foil produces results and affords advantages not obtainable with varnished paper spots and not suggested therefore by the use of varnished paper.

If desired, the adhesive may be applied at the time the varnish coated foil is assembled with the cap, for example, as described in my copending application, Serial No. 360,895, filed May 6, 1929. In this process, the strips of varnish coated foil and adhesive tissue, such as gutta percha, are collated and fed into a punching machine so that superimposed or registering discs of adhesive tissue and spot material are punched from the strips and applied to the cap, heat and pressure being applied to fuse the gutta percha and simultaneously causing adhesion of the same to both the spot disc and the cushion liner in the cap.

In Figures 3 and 4, there is shown a cap made from such a material, whether of the preformed type, shown in Figures 1 and 2, or of the type built up during assembly with the cap. This cap comprises a metallic body or shell 13 of the usual type, having a corrugated skirt 14. Within the cap is a disc of cushion material, such as composition cork 15. This liner or disc is provided with a center spot 16, having its edge spaced from the skirt of the cap to provide a surrounding surface of cushion material, which may directly engage the lip of a bottle, as described in the patent to McManus, No. 1,339,066, granted May 4, 1920.

The disc 16 comprises an exposed layer V of insoluble varnish or lacquer, an intermediate layer F of foil, such as aluminum foil, and a bottom layer A of waterproof adhesive, such as gutta percha. These layers are coextensive in area and afford a laminated center spot.

In some instances, it may be preferable to provide two layers of varnish or lacquer disposed, respectively, at opposite sides of the foil, and a cap having a center spot of this character is shown at Figure 5. In this figure there will be noted, in addition to the layers described in the foregoing description of the cap shown in Figure 4, an additional intermediate layer V′ of varnish. A coating of this character may be conveniently applied by passing the foil through the varnish bath, regardless of whether only a single surface or both surfaces of the foil are to be coated.

Although the material has been described as applied to the cushion material within a cap, it will be understood, of course, that the varnished and adhesively coated foil, or the varnish foil and a separate adhesive strip, such as gutta percha tissue, may be associated with the cushion material before assembly of the latter with the cap, and whether the cushion material is in disc or strip form. Such cushion material may be a composition of cork, newsboard or fibrous material of any character suitable for use in the manufacture of closures.

I claim:

1. A cap having a sealing liner, an interior facing of metal foil on the liner, the facing leaving exposed the surface of the liner around the periphery of the facing, adhesive coextensive with the undersurface of the facing and uniting the same to the liner, and a coating of acid or alkali resistant varnish on the outer surface of the facing.

2. A cap having a sealing liner, an interior facing of metal foil on the liner, the facing leaving exposed the surface of the liner around the periphery of the facing, adhesive coextensive with the undersurface of the facing and uniting the same to the liner, and a coating of acid or alkali resistant varnish on the outer surface of the facing colored to conceal and contrast with the foil surface.

In testimony whereof I have hereunto set my hand.

ALBIN H. WARTH.

1055

May 9, 1933. A. H. WARTH 1,908,498

METHOD OF MANUFACTURING LINER MATERIAL FOR CONTAINER CLOSURES

Original Filed Jan. 7, 1927

Fig. 1.

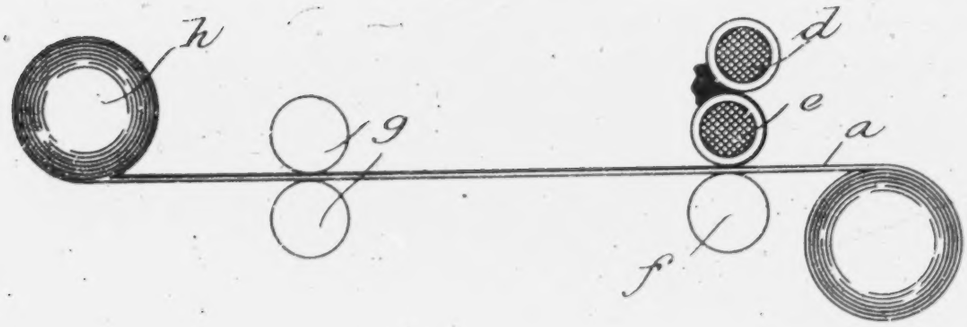


Fig. 2.

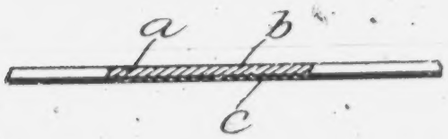


Fig. 4.

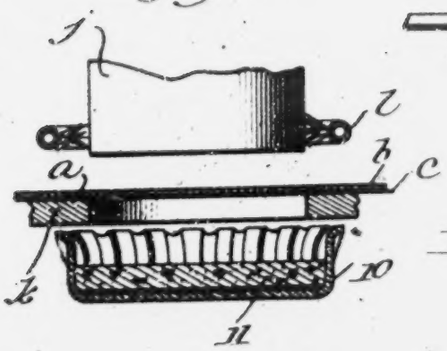
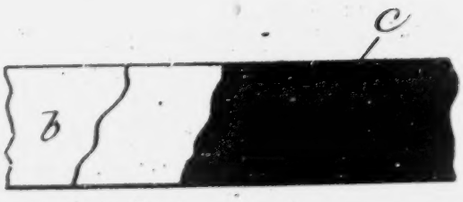


Fig. 3.



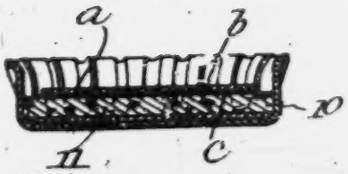


Fig. 5.

Inventor

Albin H. Warth

By Cushman, Darby & Cushman

Attorneys

Patented May 9, 1933

1,908,496

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, INC., OF BALTIMORE, MARYLAND, A CORPORATION OF NEW YORK

METHOD OF MANUFACTURING LINER MATERIAL FOR CONTAINER CLOSURES

Original application filed January 7, 1927, Serial No. 159,743. Divided and this application filed October 30, 1930. Serial No. 492,304.

My invention relates to material for facing bottle caps and method of making same, and more particularly to strip material having applied to one face thereof a coating of gutta percha.

This application is a division of my application Serial No. 414,614, filed December 17, 1929, now Patent No. 1,899,782, granted February 28, 1933. It is also a continuation-in-part of my copending application Serial No. 494,201, filed November 7, 1930, the said application being a division of my application Serial No. 159,743, filed January 7, 1927, and now Patent No. 1,788,260, granted January 6, 1931.

Heretofore, facing material for bottle caps has been secured in position within the caps by means of gutta percha tissue. In forming the facing disks or center spots and applying them to the caps, the practice has been to cut disks from superimposed strips of facing material and gutta percha tissue, deposit the disks in the cap and apply heat for the purpose of fusing the gutta-percha tissue. Such a method is illustrated and described in my copending application Serial No. 492,546, filed October 31, 1930, as a division of my copending application Serial No. 360,895, filed May 5, 1929, and now Patent No. 1,899,783, granted February 28, 1933. As will be understood, this method of procedure is utilized in the production of caps of the "center spot" type, i. e. which are provided with a facing or "center spot" of less diameter than the cap or cushion disc within the cap. It is to the production of material for the manufacture of caps of this "center spot", that the present invention more particularly relates although in its broader aspects it is useful in the manufacture of caps having facings other than "center spots". A further illustration of a cap of the "center spot" type is to be found in the patent to McManus, No. 1,339,066, granted May 4, 1920. One difficulty in thus applying such center spots or disks to caps has arisen from the use of superimposed unconnected strips of facing material and of gutta percha, the two strips being simultaneously fed from the same roll in relation to the punch of the face applying machine. As will be understood, facings of the "center spot" type are applied within the formed cap to the cushion liner and this method of manufacture presents problems quite distinct from the manufacture of caps having facings co-extensive with the cushion liner, since facings coextensive with the cushion liner are ordinarily produced by adhesively uniting superimposed facing material and cushion liner material, both in sheet form, thereafter simply punching laminated disks of facing material and cushion material from the laminated sheet.

With this condition, there is not only difficulty in feeding the strip, but in cutting the gutta percha with a clean sharp edge so as to ensure the binding stratum of gutta percha being co-extensive in area with the facing disk. The gutta percha binding stratum in such disks is intended not only to act as a cement, but also as a non-absorbent, gas impervious medium for avoiding possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shell itself or a cushion disk of cork or composition cork.

Furthermore, when thus using superimposed strips of the facing material and of gutta percha tissue, it was essential, during the application of the disk to the cap, to bond the gutta percha to both the material of the cap and the facing material.

It is desirable, in the use of facing disks of the character above refered to, that the gutta percha stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of paper and gutta percha, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip

is provided with a firmly adherent, continuous thin facing of gutta percha, thus avoiding all necessity for assembling strips of facing material and of gutta percha tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of gutta percha is evenly distributed upon one face of a strip of facing material. The gutta percha is not only firmly bonded to this material, but is forced into the surface grain thereof, and has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

The manner of applying the gutta percha to the facing strip is such as to ensure substantial uniformity in the condition of the gutta percha throughout the strip by reason of the fact that those impurities or imperfections resulting from the working of gutta percha in a mill will develop only along the edges of the facing material, where they may either be removed by trimming wide strips of the material, or will come within the wastage of narrow strips when cutting disks from such strips.

Furthermore, gutta percha tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the re-winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain as distinguished from its normal granular formation.

In applying the gutta percha to the fibrous or metallic facing material in accordance with my invention, the thickness of the gutta percha is determined solely by that required to secure the desired intermediate stratum of the gutta percha in the finished cap.

In the application of heat, when bonding the facing material to the cap, when utilizing gutta percha tissue, a tendency of the gutta percha is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the gutta percha tissue when fused, I have been unable to determine. In the strip of my invention, however, the gutta-percha is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

So far as the method of producing the strip is concerned, it is such that the effective distribution of the gutta percha throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the gutta percha surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine.

It is desired to note that the surface of the strip to which the gutta-percha is not applied is always a highly polished surface, whether it be a varnish fibrous material such as paper, or a metal foil, so that the gutta percha surface will not adhere thereto. By applying the gutta percha directly to the surface of the paper and firmly bonding it there is not liklihood of difficulties arising as a result of the separation of the gutta percha from the facing strip during the unwinding operation, either as a result of slight adherence, from suction or otherwise, such as frequently occurs when using the superimposed strips of the facing material and of gutta percha tissue.

The invention consists primarily in a method of producing material for facing bottle caps consisting of a facing strip of nonabsorbent, gas impervious and acid resisting material such as resistant varnished paper or metal foil having bonded thereto, throughout one face thereof, a thin surfacing of heat fusible adhesive, such as gutta percha, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawing,

Figure 1 is a diagrammatic showing of the method of producing the facing material of the invention.

Figure 2 is a longitudinal view, partly in cross section, of a fragmentary portion of said material.

Fig. 3 is a face view thereof with a portion of the facing strip broken away.

Fig. 4 is a vertical sectional view illustrating the method of applying the material to a cap, and

Fig. 5 is a vertical sectional view showing the cap with the spot applied.

Like letters refer to like parts throughout the several views.

In the accompanying drawing, the thickness dimensions are all greatly exaggerated, the thickness of the facing strip being less than five thousandths of an inch, and that of the gutta-percha surfacing less than two thousandths of an inch.

In the embodiment of the invention shown in the drawing, the facing strip is composed of what is known as express paper which is a resistant or hard, tough paper having little absorptive properties. The properties inherent to the paper, however, are such, if properly finished, as to adapt it for use as facing material for bottle caps, although it is extremely difficult to satisfactorily cement

such paper to the metal shell or cork cushion of such a closure.

In order to impart to one surface of the paper only the desired properties which will result in this strip presenting toward the contents of a bottle, a surface which is non-absorbent, gas impervious and acid resisting, I give a finish to this surface consisting of a coating of a varnish having the desired properties, and which includes therein resin, Chinawood oil, a drier and a plasticizer. This surface finish, in addition to having the properties above described, will also be sufficiently flexible to avoid the formation of cracks, or impart to the paper strip as a whole, a degree of brittleness which might result in the formation of such cracks or seams in the paper as would destroy the surface finish and permit the contents of the bottle to attack the body of the paper.

While express paper is a water finish paper, other similar papers may be used such as sulfite paper or bleached kraft paper.

The varnish finish coating above referred to is indicated at *b* in the drawing, this coating being very thin, merely sufficient to provide a continuous surface upon one side of the strip. The other side of the paper strip presents the normal finish of the paper, and has firmly bonded thereto a thin coating *c* of gutta percha, covering the entire face of the strip and presenting a smooth continuous surface, having a general granular character resulting from the manner of applying same to the paper.

It is obvious that in the handling of the completed strip of facing material the gutta percha facing *c* will be incapable of stretch or distortion because of its firm adherence to the non-elastic paper strip *a*. As compared with gutta percha tissue, the quantity of gutta percha required to secure the desired bonding action, when assembling the facing disk in a cap, is somewhat reduced.

In cutting disks from a strip of the material, there is no tendency toward mutilation of the gutta percha by reason of possible drag in the cutting dies, and each disk, as delivered from the die to within a cap, will present a continuous uninterrupted gutta percha surface upon the disk, so as to ensure, by the subsequent application of heat and pressure, a bond between the disk and the cap co-extensive in area with the disk.

In Fig. 4 there is shown a convenient arrangement for applying the disk to the cap. The cap 10 is of the type having an interior facing 11 of cushion material, such as composition cork, and is shown as arranged beneath cutting dies *j*, *k*. The paper in strip form is fed beneath the die *j* with the gutta-percha coating *c* facing the cap. With the descent of the punch *j* the disk is cut from the strip and pressed by the punch upon the cap which may be supported by any suitable means (not shown). As illustrated in Figs. 4 and 5, the disk is preferably of smaller diameter than the cap liner so as to form a substantially centrally disposed spot. The punch *j* may be maintained at elevated temperature, as by means of the burner *l*; the temperature should be sufficient to fuse the gutta-percha coating and make it tacky so that practically simultaneously with the pressing of the disks against the cap facing, the same will be adhesively united to the cap with sufficient permanency to insure accurate positioning of the disk and avoid likelihood of displacement of the same thereafter. As will be understood, when the cap is removed from the heated zone, the gutta-percha will harden and thereby firmly retain the disk in position as illustrated in Fig. 5.

Since, in applying the gutta percha to the paper, the conditions are such as to completely fill all surface pores, it is obvious that during the bonding action, in the facing machine there is no tendency of the gutta percha, during and after fusing, leaving exposed, minute openings at any point of the surface of the paper.

By reason of the thinness of the gutta percha facing *c* there is no tendency toward the expression of any of the gutta percha from between the facing disk and the portion of the cap to which it is applied.

The possibility of securing a clean cut by the dies for forming the disks, both as to the paper and as to the gutta percha facing *c*, ensures an effective bond entirely about the edge of the disk, presenting a continuous barrier of non-absorptive, gas impervious and acid resisting material at the space between the disk and the cap which will effectively prevent the seepage of the gas or fluids in a bottle between the disk and the portion of the cap to which it is applied.

In Fig. 1 of the drawing, I have illustrated the method of making the strip material of my invention. In the practice of this method, I use an ordinary mill with its heated rollers *d* and *e*. Operative in relation to the lower roller *e* is a backing roller *f*. A strip of the paper or other material *a* is drawn between the rollers *e* and *f* by means of the feed rollers *g*, by which it is passed to a re-wind mechanism indicated at *h*.

The method contemplates the feeding of the strip *a* between a backing roller *f*, and between one of the heated rolls, of a gutta percha mill *e*, thus applying a thin coating of gutta percha while hot, to one surface only of the paper strip *a*, the gutta percha hardening from its exposure to the surrounding temperature before engagement by the feed rollers *g*.

In feeding the strip *a* in the manner above described, the varnish surface thereof is presented downwardly, this surface having been applied to the paper prior to the feeding

of the strip in the mill. In this manner a very thin coating of gutta percha may be applied to one face of the strip *a*, to which it will firmly adhere while said strip is passing between the rollers *e* and *f*.

The thickness of the surface coating may be controlled by adjustment of the rollers *d* and *e*, and also by adjustment of the roller *f* in relation to the latter. In this manner, the strip *a* will have applied thereto a surfacing of gutta percha which will be evenly distributed through the entire surface of the strip, and will present a substantially smooth exterior surface, notwithstanding surface irregularities in the paper itself. The smooth polished surface *c* will avoid any possibility of a surface stratum *c* adhering to the adjoining stratum *b* after the strip is re-wound and while it is being unwound in the disk applying machine, since the gutta percha will not become tacky under normal factory temperatures.

It is preferable to apply the gutta percha in the manner above described, to wide strips of paper which are cut into narrower strips of the desired width for use with bottle caps of different diameters.

The method described has been found to be applicable to the coating of paper strips with gutta percha; if used to coat metal foil it may be desirable to employ a previous preparation of one surface of the foil to receive the gutta percha and permit it to adhere thereto with sufficient strength to permit a continuing application of gutta percha to a strip as required by the method of my invention.

Facing material embodying the invention possesses the advantages that a substantially uniform and complete distribution of the gutta percha throughout each disk cut from a strip, is assured. The additional labor of associating a strip of gutta percha tissue and a strip of facing material is avoided, and higher speeds may be attained in the facing disk applying machine. By the method of applying fused gutta percha to a facing strip, there is considerable saving, not only by the reduction in the amount of gutta percha required, as compared with the use of gutta percha tissue, but the preparation of the strips for use in the disk applying machines is very much reduced, and a more uniform quality in the bond between the disks and the caps is also assured.

I claim:

1. The herein described method of making a bottle cap liner material which consists in applying a thin stratum of fused gutta-percha to substantially the entire of one surface of a continuous strip of facing material selected from a group consisting of metallic foil and varnished coated tough paper having relatively low absorptive properties, while subjecting said material and said gutta-percha to sufficient pressure to cause the gutta-percha to conform with, and adhere to, the surface of said material, and then cutting the coated strip into narrower strips of the width desired.

2. The herein described method of making a bottle cap liner material which consists in moving a continuous strip of resistant material selected from a group consisting of metallic foil and varnished coated tough paper having relatively low absorptive properties across a cold backing roll in operative relation to a heated roll of gutta-percha mill, and applying a thin coating of fused gutta-percha to substantially the entire of one surface of said strip by subjecting said strip and said gutta-percha to sufficient pressure to cause the gutta-percha to conform with, and adhere to, the surface of said material, and then cutting the coated strip into narrower strips of the width desired.

3. The herein described method of making a bottle cap liner material which consists in moving a continuous strip of relatively hard, tough paper having relatively low absorptive properties across a cold backing roll in operative relation to a heated roll of a gutta-percha mill, and applying a thin coating of fused gutta-percha to said strip by subjecting said strip and said gutta-percha to sufficient pressure to cause the gutta-percha to conform with, and adhere to, the surface of said material, providing the other surface of the paper with a coating of varnish, and cutting the varnished and gutta percha coated strip to narrower strips of the width desired.

4. The improved method of making a bottle cap liner material which consists in providing a strip of material which is waterproof and acid resistant selected from a group consisting of metallic foil, and hard, tough paper having relatively low absorptive properties and forming on one surface thereof a continuous coextensive coating of adhesive which is normally hard or nontacky at room temperature but softens upon the mere application of heat, and cutting the varnished and gutta-percha coated strip to narrower strips of the width desired.

5. The improved method of preparing for crown caps facing material in strip form adapted to have center spot disks punched therefrom and applied to the cap by the mere application of heat and pressure which consists in providing highly flexible material selected from a group consisting of metallic foil or varnished coated tough paper having relatively low absorptive properties, coating the entire of one surface of said material while in the form of sheets having several times the width of the final strip desired with a continuous thin adherent and coextensive layer of adhesive which is fusible upon the mere application of heat, impervious to water, highly flexible, and substantially non-tacky

at room temperature, and then cutting the coated sheet into narrow strips.

6. The improved method of preparing for crown caps facing material in strip form adapted to have center spot disks punched therefrom and applied to the cap by the mere application of heat and pressure which consists in providing highly flexible material selected from a group consisting of metallic foil or varnished coated tough paper having relatively low absorptive properties, moving said material in sheet form having several times the width of the final strip desired in operative relation to a heated roll of a gutta percha mill and applying to substantially the entire of one surface thereof of thin coating of fused gutta percha by subjecting the sheet to sufficient presure to cause the gutta percha to conform with and adhere to the surface of said material, and then cutting the coated sheet into relatively narrow strips of the width desired.

7. The improved method of preparing for crown caps facing material in strip form adapted to have center spot disks punched therefrom and applied to the cap by the mere application of heat and pressure which consists in providing highly flexible metallic foil, coating substantially the entire of one surface of said foil while in the form of a sheet having several times the width of the final strip desired with a continuous thin, adherent and coextensive layer of gutta percha fusible upon the mere application of heat, and then cutting the coated sheet into relatively narrower strips.

8. The improved method of preparing for crown caps facing material in strip from adapted to have center spot disks punched therefrom and applied to the cap by the mere application of heat and pressure which consists in providing highly flexible metallic foil, coating substantially the entire of one surface of said foil while in the form of a sheet having several times the width of the final strip desired with a continuous thin, adherent and coextensive layer of adhesive which is fusible upon the mere application of heat, impervious to water, highly flexible, and substantially non-tacky at room temperature, and then cutting the coated sheet into narrow strips.

9. The improved method of preparing for crown caps facing material in strip form adapted to have center spot disks punched therefrom and applied to the cap by the mere application of heat and pressure which consists in providing highly flexible metallic foil, moving said foil in sheet form having several times the width of the final strip desired in operative relation to a heated roll of a gutta percha mill and applying to substantially the entire of one surface thereof a thin coating of fused gutta percha by subjecting the sheet to sufficient pressure to cause the gutta percha to conform with and adhere to the surface of said material, and then cutting the coated sheet into relatively narrow strips of the width desired.

In testimony whereof I have hereunto set my hand.

ALBIN H. WARTH.

1061

Jan. 6, 1931. A. H. WARTH 1,788,260

PROCESS OF PRODUCING CLOSURES

Filed Jan. 7, 1927

Fig. 1.

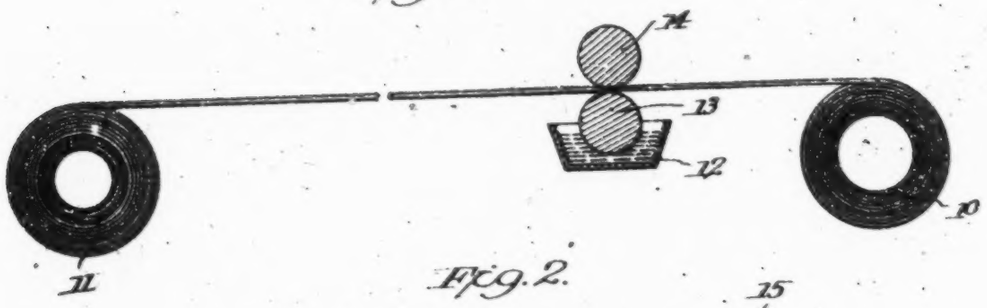


Fig. 2.

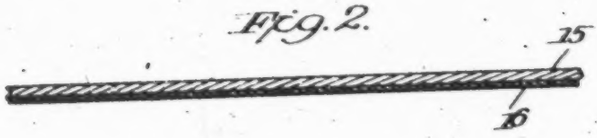


Fig. 3.

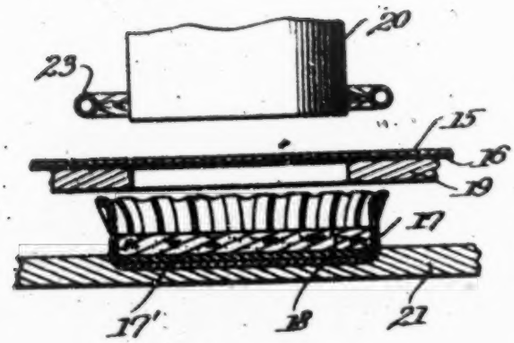


Fig. 4.

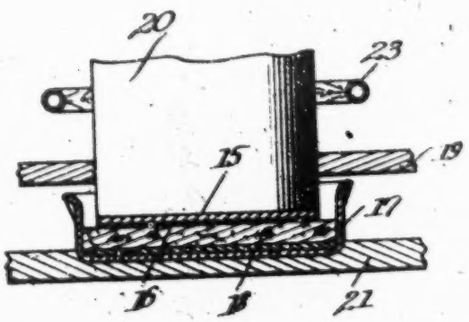


Fig. 5.

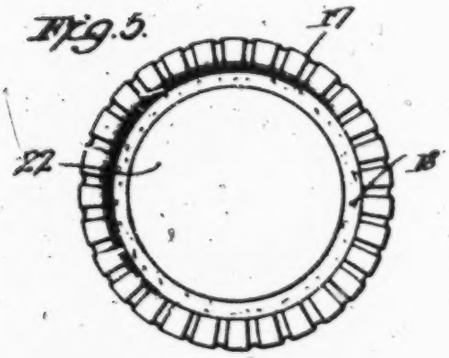
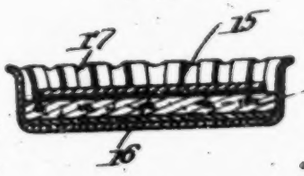


Fig. 6.



Inventor

Albin H. Warth.

By Cushman Darby & Cushman

Attorneys

1062

Patented Jan. 6, 1931

1,788,260

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CROWN CORK & SEAL COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

PROCESS OF PRODUCING CLOSURES

REISSUED

Application filed January 7, 1927. Serial No. 159,743.

This invention relates to a method of producing closures of the type in which a sealing disk has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shelf itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing

bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300° F. maintained for about 30 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots

are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17′; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally

disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

In testimony whereof, I have hereunto set my hand.

ALBIN H. WARTH.

BLANK

PAGE

BLANK

PAGE

1066

1310

DEFENDANT'S EXHIBIT E E E

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the

Letters Patent of

Albin H. Warth, Assignor to
Crown Cork & Seal Company, Inc.,

Number 1,899,782, Granted February 28, 1933,

for

Improvement in Materials for Facing Bottle Caps and Methods of Making Same.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this nineteenth day of January, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-eighth.

ATTEST:

Chief of Division.

Commissioner of Patents.

11-6220

1067

1311

NUMBER (Series of 1925)
414614

DIV. 56 50

PATENT NO. 1899782

1929 DATED FEB 28 1933

(EX'R'S BOOK) L 369 25
161 9
6

Name ALBIN H. WARTH,
Asst to Crown Cork & Seal Company, Inc.
of New York, N.Y. a corp of New York,

of BALTIMORE,
State of MARYLAND,

Invention MATERIAL FOR FACING BOTTLE CAPS AND METHOD OF MAKING SAME

Division of Appl. No. ____ filed ____, 19__

ORIGINAL	RENEWED
APPLICATION FILED COMPLETE DEC 17, 1929	
PAPERS OF APPLICATION FILED: Petition, Specification, Oath, First Fee $30, 1 sheets Drawings, DEC 17, 1929	31
P.C. 11-22-30	
Examined and passed for Issue Oct 7, 1933	Renewed and passed for Issue ____, 19__
O. K. Blake Exr. Div.	Exr. Div.
Notice of Allowance Oct 7, 1933	Notice of Allowance ____, 19__ By Commissioner
Final Fee $30 Oct 27, 1933	Final Fee ____, 19__
Attorney FRANK T. BENTWORTH 81 PARK ROW NEW YORK N.Y. Cushman, Bryant & Darby, Washington Loan & Trust Bldg., Cty. American Security Bldg.	
Associate Attorney	

No. of Claims Allowed 8 Print Claim 3 in O. G. Class 91-6

Title as Allowed Material For Facing Bottle Caps And Method of Making Same

1063

1312

UNITED STATES AND FOREIGN PATENTS AND TRADE MARKS

FRANK P. WENTWORTH
PATENT AND TRADE MARK CAUSES
66 PARK ROW, NEW YORK

CABLE ADDRESS: "FRAWENPAT" NEW YORK
TELEPHONES: 1930 CORTLANDT

120 RECD
DEC 17 29
C.C.U.S.PAT.OFFICE

Dec. 16th 1929.

Hon. Commissioner of Patents,
Washington, D. C.

$20 cl

Sir:-

Enclosed herewith is application of Albin H. Barth, for U. S. Letters Patent upon Improvements in Material for Facing Bottle Caps and Method of Making Same, together with check covering the Government filing fee thereon.

Respectfully,

Frank P. Wentworth

CB

ENCS.

1069

1313

Patent 1,782,782

TO THE COMMISSIONER OF PATENTS:-

Your petitioner, Albin H. Warth, a citizen of the United States, residing at Baltimore, in the County of Baltimore and State of Maryland, (whose Post Office address is 29 York Court, Baltimore, Md.) prays that Letters Patent may be granted to him for the new and useful Improvements in Material for Facing Bottle Caps and Method of Making Same, set forth in the annexed specification; and he hereby appoints Frank T. Wentworth, of 41 Park Row, in the Borough of Manhattan, City, County and State of New York, his attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the patent, and to transact all business in the Patent Office connected therewith.

Signed at Baltimore, in the County of Baltimore and State of Maryland, this 11th day of December 1929.

Albin H. Warth

TO ALL WHOM IT MAY CONCERN:-

Be it known that I, Albin H. Marth, a citizen of the United States, residing at Baltimore, in the County of Baltimore and State of Maryland, have invented certain new and useful Improvements in Material for Facing Bottle Caps and Method of Making Same, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to material for facing bottle caps and method of making same, and more particularly to strip material having applied to one face thereof a coating of gutta-percha.

Heretofore, facing material for bottle caps has been secured in position within the caps by means of gutta-percha tissue. In forming the facing disks and applying them to the caps, the practice has been to cut disks from superimposed strips of facing material and gutta-percha tissue, deposit the disks in the caps and apply heat for the purpose of fusing the gutta-percha tissue. One difficulty in thus applying such disks to caps has arisen from the use of superimposed unconnected strips of facing material and of gutta-percha, the two strips being simultaneously fed from the same roll in relation to the punch of the face applying machine.

With this condition, there is not only difficulty in feeding the strip, but in cutting the gutta-percha with a clean sharp edge so as to ensure the binding stratum of gutta-percha being co-extensive in area with the facing disk. The gutta-percha binding stratum in such disks is intended not only to act as a cement, but also as a non-absorbent, gas impervious medium for avoiding possibility of the contents of a bottle getting between the facing disk and the material of the cap,

either the metal shell itself or a cushion disk of cork or composition cork.

Furthermore, when thus using superimposed strips of the facing material and of gutta-percha tissue, it was essential, during the application of the disk to the cap, to bond the gutta-percha to both the material of the cap and the facing material.

In preparing the rolls of facing material and gutta-percha tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material and pass them through a re-winding machine. This is a troublesome and expensive operation because of the frequent breakage of the gutta-percha tissue if the re-winding machine be operated at too high a speed, and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the gutta-percha possessed a certain degree of elasticity, thus introducing a factor of difficulty in the re-winding machine in securing a uniform paying out of both the facing strip and the gutta-percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the gutta-percha stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of paper and gutta-percha, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood

of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of gutta-percha, thus avoiding all necessity for assembling strips of facing material and of gutta-percha tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of gutta-percha is evenly distributed upon one face of a strip of facing material. The gutta-percha is not only firmly bonded to this material, but is forced into the surface grain thereof, and has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

The manner of applying the gutta-percha to the facing strip is such as to ensure substantial uniformity in the condition of the gutta-percha throughout the strip by reason of the fact that those impurities or imperfections resulting from the working of gutta-percha in a mill will develop only along the edges of the facing material, where they may either be removed by trimming wide strips of the material, or will come within the wastage of narrow strips when cutting disks from such strips.

Furthermore, gutta-percha tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the re-winding and the disk applying, machines, and during the

process of its production it has more or less of a longitudinally extending grain as distinguished from its normal granular formation.

In applying the gutta-percha to the fibrous or metallic facing material in accordance with my invention, the thickness of the gutta-percha is determined solely by that required to secure the desired intermediate stratum of the gutta-percha in the finished cap.

In the application of heat, when bonding the facing material to the cap, when utilizing gutta-percha tissue, a tendency of the gutta-percha is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the gutta-percha tissue when fused, I have been unable to determine. In the strip of my invention, however, the gutta-percha is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

So far as the method of producing the strip is concerned, it is such that the effective distribution of the gutta-percha throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the gutta-percha surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine.

It is desired to note that the surface of the strip to which the gutta-percha is not applied is always a highly polished surface, whether it be a varnish fibrous material such

as paper, or a metal foil, so that the gutta-percha surface will not adhere thereto. By applying the gutta-percha directly to the surface of the paper and firmly bonding it there is no likelihood of difficulties arising as a result of the separation of the gutta-percha from the facing strip during the unwinding operation, either as a result of slight adherence, from suction or otherwise, such as frequently occurs when using the superimposed strips of the facing material and of gutta-percha tissue.

The invention consists primarily in material for facing bottle caps consisting of a facing strip of non-absorbent, gas impervious and acid resisting material, having bonded thereto, throughout one face thereof, a thin surfacing of gutta-percha; and in such other novel characteristics, and in the novel steps and practices of producing same, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a diagrammatic showing of the method of producing the facing material of the invention;

Fig. 2 is a longitudinal view, partly in cross section, of a fragmentary portion of said material; and

Fig. 3 is a face view thereof with a portion of the facing strip broken away.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, the thickness dimensions are all greatly exaggerated, the thickness of the facing strip being less than five thousandths of an inch, and that of the gutta-percha surfacing, less than two thousandths of an inch.

In the embodiment of the invention shown in the draw-

ing, the facing strip is composed of what is known as Express paper which is a hard, tough paper having little absorptive properties. The properties inherent to the paper, however, are such, if properly finished, as to adapt it for use as facing material for bottle caps, although it is extremely difficult to satisfactorily cement such paper to the metal shell or cork cushion of such a closure.

In order to impart to one surface of the paper only the desired properties which will result in this strip presenting toward the contents of a bottle, a surface which is non-absorbent, gas impervious and acid resisting, I give a finish to this surface consisting of a coating of a varnish having the desired properties, and which includes therein resin, China-wood oil, a drier and a plasticizer. This surface finish, in addition to having the properties above described, will also be sufficiently flexible to avoid the formation of cracks, or impart to the paper strip as a whole, a degree of brittleness which might result in the formation of such cracks or seams in the paper as would destroy the surface finish and permit the contents of the bottle to attack the body of the paper.

R.B While Express paper is a water leaf finish paper, other similar papers may be [illegible] such as Sulfite paper or Bleached Kraft paper.

The varnish finish coating above referred to is indicated at b in the drawing, this coating being very thin, merely sufficient to provide a continuous surface upon one side of the strip. The other side of the paper strip presents the normal finish of the paper, and has firmly bonded thereto a thin coating a of gutta-percha, covering the entire face of the strip and presenting a smooth continuous surface, having a general granular character resulting from the manner of applying

same to the paper.

It is obvious that in the handling of the completed strip of facing material the gutta-percha facing g will be incapable of stretch or distortion because of its firm adherence to the non-elastic paper strip a. As compared with gutta-percha tissue, the quantity of gutta-percha required to secure the desired bonding action, when assembling the facing disk in a cap, is somewhat reduced.

In cutting disks from a strip of the material, there is no tendency toward mutilation of the gutta-percha by reason of possible drag in the cutting die, and each disk, as delivered from the die to within a cap, will present a continuous uninterrupted gutta-percha surface upon the disk, so as to ensure, by the subsequent application of heat and pressure, a bond between the disk and the cap co-extensive in area with the disk.

Since, in applying the gutta-percha to the paper, the conditions are such as to completely fill all surface pores, it is obvious that during the bonding action, in the facing machine there is no tendency of the gutta-percha, during and after fusing, leaving exposed, minute openings at any point of the surface of the paper.

By reason of the thinness of the gutta-percha facing g, there is no tendency toward the expression of any of the gutta-percha from between the facing disk and the portion of the cap to which it is applied.

The possibility of securing a clean cut by the dies for forming the disks, both as to the paper and as to the gutta-percha facing g, ensures an effective bond entirely about the edge of the disk, presenting a continuous barrier of non-absorptive, gas impervious and acid resisting material at the space between the disk and the cap which will effectively pre-

vent the seepage of gas or fluids in a bottle between the disk and the portion of the cap to which it is applied.

In Fig. 1 of the drawings, I have illustrated the method of making the strip material of my invention. In the practice of this method, I use an ordinary mill with its heated rollers d and e. Operative in relation to the lower roller e is a backing roller f. A strip of the paper or other material a is drawn between the rollers e and f by means of the feed rollers g, by which it is passed to a re-wind mechanism indicated at h.

The method contemplates the feeding of the strip a between a backing roller f, and between one of the heated rolls of a gutta-percha mill e, thus applying a thin coating of gutta-percha while hot, to one surface only of the paper strip a, the gutta-percha hardening from its exposure to the surrounding temperature before engagement by the feed rollers g.

In feeding the strip a in the manner above described, the varnish surface thereof is presented downwardly, this surface having been applied to the paper prior to the feeding of the strip in the mill. In this manner a very thin coating of gutta-percha may be applied to one face of the strip a, to which it will firmly adhere while said strip is passing between the rollers e and f.

The thickness of the surface coating may be controlled by adjustment of the rollers d and e, and also by adjustment of the roller f in relation to the latter. In this manner, the strip a will have applied thereto a surfacing of gutta-percha which will be evenly distributed throughout the entire surface of the strip, and will present a substantially smooth exterior surface, notwithstanding surface irregularities in the paper itself. The smooth polished surface c will avoid any

possibility of a surface stratum c adhering to the adjoining stratum b after the strip is re-wound and while it is being unwound in the disk applying machine, since the gutta-percha will not become tacky under normal factory temperatures.

It is preferable to apply the gutta-percha in the manner above described, to wide strips of paper which are cut into narrower strips of the desired width for use with bottle caps of different diameters.

The method described has been found to be applicable to the coating of paper strips with gutta-percha, and it is also applicable but in coating foil it is desirable to provide, prepare, as by the application of a coating, ~~it being extremely doubtful if it could be advantageously used~~ to coat metal foil, ~~without a previous preparation~~ of one surface of the foil to receive the gutta-percha and permit it to adhere thereto with sufficient strength to permit a continuing application of gutta-percha to a strip as required by the method of my invention.

Facing material embodying the invention possesses the advantages that a substantially uniform and complete distribution of the gutta-percha throughout each disk cut from a strip, is assured. The additional labor of associating a strip of gutta-percha tissue and a strip of facing material is avoided, and higher speeds may be attained in the facing disk applying machine. By the method of applying fused gutta-percha to a facing strip, there is considerable saving, not only by the reduction in the amount of gutta-percha required, as compared with the use of gutta-percha tissue, but the preparation of the strips for use in the disk applying machines is very much reduced, and a more uniform quality in the bond between the disks and the caps is also assured.

It is preferable for the bottling of many liquids to employ facing material composed of paper of the general character herein described, as compared

with the use of metal foils.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:-

1:- Material for facing bottle caps consisting of a facing strip of non-absorbent, gas impervious and acid resisting material, having bonded thereto, throughout one face thereof, a thin surfacing of gutta-percha.

2:- Material for facing bottle caps consisting of a paper strip, having applied to one surface thereof a surface of non-absorbent, gas impervious and acid resisting material, and having bonded thereto, throughout the other surface thereof, a thin surfacing of gutta-percha.

3:- Material for facing bottle caps consisting of a paper strip, having applied to one surface thereof a surface coating of varnish consisting of resin, China-wood oil, a drier and a plasticizer, whereby said surface of the paper is made non-absorbent, gas impervious and acid resisting, and having bonded thereto, throughout the other surface thereof, a thin surfacing of gutta-percha.

4:- The herein described method of making material for facing bottle caps consisting of applying a thin stratum of fused gutta-percha to one surface of a continuous strip of fibrous facing material, while subjecting said material and said gutta-percha to sufficient pressure to cause the gutta-percha to conform with, and adhere to, the surface of said material.

5:- The herein described method of making material for facing bottle caps consisting of moving a continuous strip of paper across a cold backing roll in operative relation to a heated roll of a gutta-percha mill, and applying a thin coating of fused gutta-percha to said strip by subjecting said

strip and said gutta-percha to sufficient pressure to cause the gutta-percha to conform with, and adhere to, the surface of said material.

In witness whereof I have hereunto affixed my signature ~~in the presence of two subscribing witnesses~~, this [illegible] of December 1939.

Alva W. Watts [illegible]

~~Witnesses:~~

M. H. Handley

Miriam Stoer

1081

1325

STATE OF MARYLAND :
: ss.-
COUNTY OF BALTIMORE :

Albin H. Warth, the above named petitioner, being duly sworn, deposes and says that he is a citizen of the United States, and a resident of Baltimore, in the County of Baltimore and State of Maryland; that he verily believes himself to be the original, first and sole inventor of the Improvements in Material for Facing Bottle Caps and Method of Making Same, described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication, in any country, before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; and that no application for patent upon said invention has been filed by him or his representatives or assigns in any country foreign to the United States.

Albin H. Warth

Subscribed and sworn to before me, this 11th day of Dec, 1928.

[seal]

MY COMMISSION EXPIRES MAY 4, 1931

NOTARY PUBLIC

BLANK

PAGE

BLANK

PAGE

1082

1326

Pow. to Inspect & Make Copies # 2

Crown Cork & Seal Company, Inc.

Baltimore, Md.

NEW PROCESS CORK CO. Inc.
THE CROWN CORK & SEAL CO.
OF BALTIMORE CITY
CONSOLIDATED

ATTORNEY'S ROOM
AUG 7 1930
U.S. PAT.

August 5th, 1930.

U.S. PATENT OFFICE
AUG 7 1930
DIVISION 56

IN THE UNITED STATES PATENT OFFICE.

Name: Albin H. Warth,

Serial No. 414,614

Filing Date: December 17th, 1929.

Crown Cork and Seal Company, Inc. assignee of record of the entire right, title and interest in the above entitled application,

hereby gives

Messrs. Cushman, Bryant & Darby, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, whose registry number is 7196, access to the above application with power to inspect the application file in the Patent Office and make copies of all papers.

CROWN CORK & SEAL COMPANY, INC.

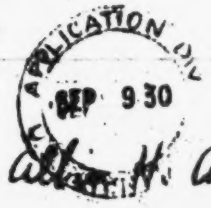
By H. T. Dustin
Vice-President.

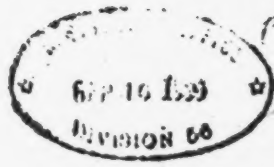
D K
J Wade
Transmit
Dan TG

1083

1327

mem





Applicant: Albert H. Wirth

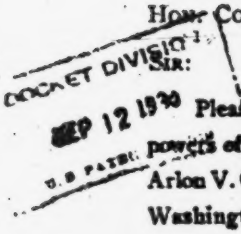
Invention:

Filed: Dec. 17. 1929

Ser. No. 414614

HON. COMMISSIONER OF PATENTS,

SIR:



Please recognize as ~~assistants~~ attorneys in the above named case, with full powers of prosecution, Messrs. Cushman, Bryant & Darby, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, Jr. (Reg. No. 7196), Washington Loan & Trust Co. Building, Washington, D. C.

All former powers are hereby revoked.

Respectfully,

W. E. Hasteng
Atty. Pros.

Crown Cork & Seal Company, Inc.

Aug 27th 1930

Accepted

SEP 12 1930

T. E. Robertson
Commissioner.

eee/18

1084
1328

EEG

069

44

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

September 16, 1930

Cushman, Bryant & Derby
Washington Loan & Trust Bldg.,
Washington, D. C.

Applicant Albin H. Warth

Serial No. 414,614

Filed Dec. 17, 1929

For Material for Facing Bottle Caps and Method of Making Same

Div. 56.

In this case your power of attorney has been accepted.

Respectfully,

Thomas E. Robertson

Commissioner.

Revoking power of attorney by assignee

to

Frank T. Wentworth
41 Park Row
New York, N. Y.

1085

1329

Div. 50 Room 322

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 5

All communications regarding this application should give the serial number, date of filing, and name of the applicant

MAILED
OCT 7 1930

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

APS 11—2000

Cushman, Bryant & Darby,
Washington Loan & Trust Bldg.,
Washington, D. C.

Applicant: Albin H. Warth

Ser. No. 414,614
Filed Dec. 17, 1929
For Material for Facing Bottle Caps and Method of Making Same

References made of record:-

Coyte	562,281	June 16, 1896	91-68RX
Weissenthanner	857,698	June 25, 1907	154-45.5(106-8)
Cushing	1,255,139	Feb. 5, 1918	154-26
Koch	1,238,156	Aug. 28, 1917	154-45.5(106-8)
Wiese	1,517,606	Dec. 2, 1924	91-68R
Warth	1,656,614	Sept. 6, 1924	215-39(106-8)
Lange	1,758,610	May 13, 1930	91-68X

Division is required between (1) Claims 1 to 3 inclusive directed to an article of manufacture which can be made by a process different from that claimed, and classifiable in Class 91, 154 or 215; (11) Claims 4 and 5 directed to a process of coating a base with gutta percha classifiable in Class 91, Subclass 68 or Class 18.

The two inventions are entirely distinct and separate, and their field of search is not co-extensive.

Pending election no action is taken on the merit of the claims.

3.m.

C. L. Blake
Examiner.

1330

1086 C/A-affidavit

APPLICATION FILED
OCT 27 30
U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

METHOD FOR FACING BOTTLE CAPS & METHOD OF MAKING SAME,

Filed Dec. 17, 1929,

Serial No. 414,614.

U. S. PATENT OFFICE
FILED
OCT 28 1930
DIVISION 50

Div. 50.

* *

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE CLAIMS

Cancel claims 4 and 5.

~~Add the following claims:~~

Add 2 As a new article of manufacture, bottle cap liner material in strip form comprising paper having a high gloss and having a coating of varnish on one surface of the paper and bonded to the other surface thereof a coating of gutta percha.

Add 3 As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof

REMARKS

Applicant has complied with the requirement for division, and herewith presents two article claims somewhat similar to the article claims originally filed.

In view of the prompt amendment, in response to the requirement for division, this application is thought

to be entitled to immediate action on the merits in accordance with the Order of the Commissioner 2670:

> "Where the first action by the Examiner upon an application is limited to a requirement for division, the application will thereafter be given preference in the order of examination over other applications previously acted upon until it has received one action upon the merits, provided the applicant makes prompt response to the Examiner's requirement for division". (287 O. G. 409)

In order to expedite the prosecution of the case, applicant presents, with this amendment, an affidavit under Rule 75, antedating the patent to Lange #1,758,61 May 13, 1930. It is thought that an interference with this patent is unnecessary for the reason that, in a companion apolication, (Ser. No. 360,895, filed May 6, 1929) the Examiner has held that the Lange patent is limited to gutta percha applied in solution form. In that case, the Examiner said:

> "Secondly, the claim recites a "coating of gutta percha". Referring to the specification of the patent it is found that the gutta percha is applied in the form of a solution, the solvent being suitably driven off to leave a thin film of gutta percha. Patentee specifically refers to the objections and disadvantages resulting from the use of gutta percha in thin sheet form (page 3, lines 41 to 56) and seeks to escape these objectionable results by applying the adhesive in liquid form, which is expressed in the claim by the word "coating". Applicant does not apply the gutta percha in liquid form as a coating but rather in thin sheet form. Consequently, this claim does not read upon applicant's disclosure inasmuch as he has disclosed no application of the adhesive in liquid form to provide a coating".

The above ruling of the Examiner, with reference to the Lange patent and also with reference to the disclosure of the applicant, fully applies to the present case. Admittedly the applicant does not disclose the application of gutta percha in solution, i. e. with a solvent. In

the present case, plastic gutta percha is rolled in a thin layer upon one surface of the paper to provide a stratum or surfacing. Whether the Examiner is right in his interpretation of the Lange claim, is a matter which seems immaterial at this time, since applicant is not presenting claims limited to a solution or precipitated coating, although obviously presenting claims which dominate this specific form of coating.

Of course, the terms "stratum" and "surfacing", as used in the specification, are intended to cover the gutta percha in the final product without reference to its form at the time it is applied. The form of the gutta percha at the time it is applied relates to the method of manufacture, and this is claimed by the application of a divisional case, which is being filed.

The term "bonded" refers to the union of the gutta percha with the paper.

The applicant was the first to apply to one surface of paper of the character defined, a varnish coating or surfacing and, to the opposite surface, a surfacing or stratum of gutta percha which adheres to the paper.

The two new claims presented by this amendment are substantially identical. Claim 6 has been drafted by applicant as a proper definition of his invention, and is thought to be allowable without an interference with the Lange patent for the reasons stated by the Examiner. However, applicant is defining the same invention, although by slightly different terms, in claim 7, which contains the precise language of the Lange claim. He is doing this, so that if the Examiner feels disposed to modify his position, he may do so and

promptly declare an interference between this application or applicant's copending application and the Lange patent.

Respectfully,

Cushman, Bryant & Duby
Attorneys.

1333 1089

APPLICATION DIV. OCT 27 30

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

METHOD FOR FACING BOTTLE CAPS
& METHOD OF MAKING SAME,

Filed Dec. 17, 1929,

Serial No. 414,614, Div. 50.

A F F I D A V I T

CITY OF BALTIMORE)
:SS.
STATE OF MARYLAND)

GEORGE GOEBEL, being duly sworn, deposes and says:

I am an engineer in the employ of Crown Cork & Seal Company, Inc., manufacturers of bottle caps, crown corks, etc., and having a place of business in the City of Baltimore, and State of Maryland.

I am familiar with the invention disclosed in the above entitled application of Albin H. Warth, and have read the accompanying amendment, as well as the claims standing in the application.

The said Albin H. Warth provided for the Crown Cork & Seal Company, Inc., prior to July 3, 1929, high gloss or express paper having a varnish coating on one surface and an adhering stratum or surfacing of gutta percha on the other surface. This paper was produced in both disc form and sheet or strip form, and was employed as a liner in caps prior to July 3, 1929. The gutta percha surfacing was used to unite the material to the cork insert within the cap and the varnished surface of the paper was left exposed.

Further Deponent sayeth not.

George Gaebel

Subscribed and sworn to before me, a Notary Public, this 21st day of October, 1930.

Florence M. Kendratt
Notary Public.

MY COMMISSION EXPIRES MAY 4, 19[illegible]

SEAL.

1091

1335

U.S. APPLICATION FILED
OCT 27 30

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

METHOD FOR FACING BOTTLE CAPS
& METHOD OF MAKING SAME,

Filed Dec. 17, 1929,

Serial No. 414,614. Div. 50.

AFFIDAVIT UNDER RULE 75

CITY OF BALTIMORE)
:SS.
STATE OF MARYLAND)

ALBIN H. WARTH, being first duly sworn, deposes and says:

I am the applicant identified in the above entitled application, and have read the accompanying amendment.

Prior to July 3, 1929, I made and used in bottle caps liner material in both disc and sheet or strip form, the material comprising express paper which has a high gloss, this paper being provided on one surface with a coating of varnish and on the other surface with a stratum or surfacing of gutta percha in adhesive union with the paper. This material was used under my supervision by the Crown Cork & Seal Company, Inc., of Baltimore, Maryland, in the manufacture of bottle caps prior to July 3, 1929. It was applied to the caps by utilizing the gutta percha stratum or surfacing to unite the paper to the cork liner or insert in the cap. The varnish surface of the paper was left exposed.

I do not know and do not believe that the invention has been in public use or on sale in this country, or patented or described in a printed publication in this

or any foreign country for more than two years prior to my above entitled application, and I have never abandoned the invention.

This affidavit is made for the purpose of antedating the patent to Lange, No. 1,758,610, granted May 13, 1930.

Further Deponent sayeth not.

Albin H. Waitz

Subscribed and sworn to before me, a Notary Public, this 21 day of October, 1930.

Luella Brady

Luella Brady, Notary Public.

SEAL.

1337 1093

INTERFERENCE

Interference No. 60878 *Paper No.* 7

Name, Albin H. Warth

Serial No. 414,614

Title, Material for Facing Bottle Caps and Method of Making Same

Filed, Dec. 17, 1929

Interference with Louzorn G. Lange, Pat. 1,758,610

DECISIONS OF

Law Examiner, _____ *Dated,* _____

Ex'r of Interferences, Davrah *Dated,* June 30 32

Board, Affirmed *Dated,* October 17, 1932

Commissioner, _____ *Dated,* _____

REMARKS:

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

1094

1338

Div. 50. Room 322

Paper No. 8

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

PATENT OFFICE
DEC 20 1930
MAILED

Copy sent Assignee
Please find below a communication from the EXAMINER in charge of this application

Thomas E. Robertson
Commissioner of Patents

Applicant: Albin H. Warth

Ser. No. 414,614
Filed Dec. 17, 1929
For Material for Facing Bottle Caps and Methods of Making Same

Cushman, Bryant & Darby,
Washington Loan & Trust Bldg.,
Washington, D. C.

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 60878 On or before JAN 19 1931

the statement demanded by rule 110 must be sealed up and filed with the subject of invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count 1. As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof.

This interference involves your application above identified and a patent No. 1,758,610 for Adhesive Backing granted to Louvern G. Lange May 13, 1930 whose address is 39 High St., Passaic, New Jersey, and whose attorneys of record are Pennie, Davis, Marvin and Edmonds of 165 Broadway, New York, N. Y., the application for said patent having been filed July 3, 1929, Serial No. 375,883.

The relation of the counts of the interference to the claims of the respective parties is as follows:-

Count	Warth	Lange
1	7	1

After termination of the interference this application will be held for restriction and revision under Rule 96.

Claims 1, 2, 3 and 6 will be held subject to rejection as unpatentable over the issue in the event of an award of priority adverse to applicant.

Ed Blake
Examiner.

1095
1339

DOCKET DIVISION
OCT 1 1931
U.S. PATENT OFFICE

APPLICATION DIV.
SEP 30 31
U.S. PATENT OFFICE

Applicant: Albin H. Warth,

Invention: METHOD FOR FACING BOTTLE CAPS & METHOD OF MAKING SAME,

Filed: Dec. 17, 1929,

Ser. No. 414,614

Interference No. 60,878

HON. COMMISSIONER OF PATENTS,

SIR:

We hereby substitute as attorneys in the above named case, Messrs. Cushman, Bryant, Darby & Cushman, a firm composed of Arlon V. Cushman, Arthur L. Bryant, John J. Darby and William M. Cushman (Reg. No. 7196), American Security Building, Washington, D. C.

Respectfully,

Cushman Bryant & Darby

Sept. 30 1931

1096

1340

101 B+Aff

APPLICATION DIV. U.S. PATENT OFFICE FEB - 1 33

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

MATERIAL FOR BOTTLE CAPS & METHOD OF MAKING SAME,

Filed December 17, 1929,

Serial No. 414,614.

Div. 50.

* * *

January 31, 1933

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 2

Line 8 cancel the paragraph beginning "In preparing etc.," and ending in line ~~14~~ 21.

Page 4

Line 12 correct the spelling of "globules".

Page 6

Line 21 cancel "leaf".

Page 9

Lines 10 and 11 cancel "it being extremely doubtful if it could be advantageously used" and substitute --and it is also applicable--.

Line 12 cancel "without a previous preparation of" and substitute --, but in coating foil it is desirable to previously prepare, as by the application of a coating,--.

Next to last line after "preferable" insert --for the bottling of many liquids--.

1097

1341

IN THE CLAIMS

Cancel claims 1 and 2.

Claim 3

Line 1 change "Material" to --material--, and before "material" insert --As a new article of manufacture,--.

Line 5 correct the spelling of "impervious".

Claim 6

Line 2 after "material" insert --in strip form--.

Add the following claims:

8. As a new article of manufacture, bottle cap spotting material in strip form comprising express paper having a coating of varnish on one surface and bonded to the other surface thereof a coating of gutta percha.

9. As a new article of manufacture, bottle cap spotting material in strip form comprising bleached kraft paper having a coating of varnish on one surface and bonded to the other surface thereof a coating of gutta percha.

(B)

10. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of heat fusible, waterproof and flexible adhesive.

11. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of gutta percha.

12. As a new article of manufacture, highly flexible material in sheet or strip form adapted for the spotting of cushion discs of crown caps with center spots of less diameter than the disc diameter by the mere application of heat and pressure consisting of a continuous layer of material selected from a group consisting of metallic foil and varnish coated tough paper having relatively low absorptive properties, said layer being coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

REMARKS

The interference (60,878) in which this application was involved having terminated favorably to the applicant, it is requested that this case be considered, and it is thought that the same is in condition for allowance.

The new claims with the exception of claim 12 are specific to coated paper. Claim 12 is generic to the subject matter of this application and of the co nding case, Serial No. 494,201, filed November 7, 1930.

Respectfully,

[signature]
Attorneys.

eee/3f

JJD:D

1099

1343

APPLICATION DIV. U.S. PATENT OFFICE
FEB - 1 33

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

MATERIAL FOR BOTTLE CAPS
& METHOD OF MAKING SAME,

Filed December 17, 1929,

Serial No. 414,614. Div. 50.

* * *

DISTRICT OF COLUMBIA:SS.

Albin H. Warth, whose application for Letters Patent for Improvements in Material for Bottle Caps & Method of Making Same, was filed December 17, 1929, Serial No. 414,614, being duly sworn, deposes and says that he has read the attached amendment and that the subject matter thereof was part of his invention, was invented before he filed his original application, above identified, for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, or in public use or on sale in this country for more than two years before the date of his application, and that the same has not been abandoned.

Albin H. Warth

Subscribed and sworn to before me this 31st day of January, 1933.

Lenora Buckhart
Notary Public. D.C.

eee/35

SEAL.

1100

1314

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

Div. 50
K 181

Serial No. 414,614

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON February THD, 1933

Albin H. Warth, Assor.,

Your APPLICATION for a patent for an IMPROVEMENT in Material for Facing Bottle Caps and Method of Making Same

filed Dec.17,1929 has been examined and ALLOWED with 8 claims.

The final fee, THIRTY DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $30 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $30 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

Cushman, Bryant, Darby & Cushman,
American Security Bldg.,
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

1101

1345

MAIL DIVISION
FEB -2 33
U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Pav. 50

Albin H. Warth

MATERIAL FACING BOTTLE CAPS AND METHOD OF MAKING SAME

Filed December 17, 1929

Serial No. 414,614

HON. COMMISSIONER OF PATENTS,

Sir:

Herewith final Government fee in the above application.

It is requested that this patent issue on the same day with the following applications: Serial Nos. 492,546 and 527,012.

Respectfully,

Attorneys

February 2, 1933.

1102

1316

FEB-2 33 680791 K ~Check - 30.00

MAIL DIVISION

FEB - 2 33

U.S. PATENT OFFICE

FINAL FEE PAID TO THE COMMISSIONER OF PATENTS

(Be careful to give correct Serial No.)

Serial No. 414,614 Div. 50

INVENTOR:

Albin H. Warth

PATENT TO BE ISSUED TO

As per record

NAME OF INVENTION, AS ALLOWED:

Material Facing Bottle Caps and Method of making same

DATE OF PAYMENT:

February 2, 1933

FEE:

Final

DATE OF FILING:

December 17, 1929

DATE OF CIRCULAR OF ALLOWANCE:

February 2, 1933 (This patent should issue on Feb.28. with patents on applns. Ser.Nos.492,546 and 527,012)

The Commissioner of Patents will please apply the accompanying fee as indicated above.

Cushman, Bryant, Darby & Cushman

Attorney.

SEND PATENT TO

Attorneys

Final fees will not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office, NOR WILL THEY BE APPLIED IN PENDING APPLICATIONS.

11—8879

1103

1347

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Feb. 4 1933

Petition under **RULE 78:**

Application of

Serial No.

Invention:

This petition is referred to Examiner in charge of Division 50 in accordance with Order No. 2698; Order No. 2801, 306 O. G., 447, and Notice of August 11, 1922.

Fee

Thomas E. Robertson
Commissioner.

1104

1348

R.78

U.S. PATENT OFFICE
FEB 3 1933
ISSUE

11/C Affidavit

IN THE UNITED STATES PATENT OFFICE

U.S PATENT OFFICE
FEB 3 - 1933
ISSUE DIVISION

Albin H. Warth,

MATERIAL FOR FACING BOTTLE CAPS AND METHOD OF MAKING SAME,

Filed December 17, 1929,

Serial No. 414,614.

Div. 50.

AMENDMENT UNDER RULE 78

February 3, 1933.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request the entry of the following amendment under Rule 78, without withdrawing the application from issue:

IN THE SPECIFICATION

Page 1

Line 12, after the period insert the following paragraph:

C1 "This application is a continuation-in-part of my copending application Serial No. 494,201, filed November 7, 1930, the latter being a division of my application Serial No. 159,743, filed January 7, 1927, and now Patent No. 1,788,260, granted January 6, 1931."

Line 19, after the period insert the following: "Such a method is illustrated and described in my copending application Serial No. 492,546, filed October 31, 1930, as a division of my copending application Serial No. 360,895, filed May 5, 1929. As will be understood, this method of procedure is utilized in the production of caps of the "center spot" type, i.e. which are pro-

vided with a facing or "center spot" of less diameter than the cap or cushion disc within the cap. It is to the production of material for the manufacture of caps of this "center spot", that the present invention more particularly relates, although in its broader aspects it is useful in the manufacture of caps having facings other than "center spots". A further illustration of a cap of the "center spot" type is to be found in the patent to McManus 1,330,066, granted May 4, 1920.

Same line (19), after "such" insert --center spots" or--.

Line 23, after the period insert the following: --As will be understood, facings of the "center spot" type are applied within the formed cap to the cushion liner and this method of manufacture presents problems quite distinct from the manufacture of caps having facings coextensive with the cushion liner, since facings coextensive with the cushion liner are ordinarily produced by adhesively uniting superimposed facing material and cushion liner material, both in sheet form, thereafter simply punching laminated discs of facing material and cushion material from the laminated sheet.--

Page 7

Line 15, after the period insert the following: --The method involved in utilizing my invention need not be more fully described herein, since it is more fully disclosed and covered in my issued patent 1,788,260, granted January 6, 1931.--

IN THE CLAIMS

Add the following claim:

1106

1350

?

#134 As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.#

(C3)

(Dig)

REMARKS

The foregoing claim is submitted for the purpose of transferring from the copending allowed application Serial No. 494,201, the first of the two (2) claims allowed therein. The single claim transferred, and numbered 13 above, is a species claim subordinate to allowed claim 12 in this application. As stated, this application is a continuation-in-part of applicant's patent No. 1,788,260, granted January 6, 1931, and such part includes the subject matter of claims 12 and 13 herein.

The specification has been amplified somewhat in a purely descriptive manner to indicate the particular products or field of this invention and reference has been made to applicant's copending case (allowed) Serial No. 429,546, as illustrating the center spot type of cap to which this invention relates in its more specific aspects.

ENTRY APPROVED
ACTING COMMISSIONER OF PATENTS

ENTRY RECOMMENDED
UNDER RULE 78.
JJD:M

Respectfully,

Attorneys for Applicant.

1107

1351

FEB 4 1933

ISSUE DIVISION

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

MATERIAL FOR BOTTLE CAPS & METHOD OF MAKING SAME,

Filed December 17, 1929,

Serial No. 414,614. Div. 50.

CITY OF BALTIMORE: SS.

Albin H. Warth, whose application for Letters Patent for Improvements in Material for Bottle Caps & Method of Making Same, was filed December 17, 1929, Serial No. 414,614, being duly sworn, deposes and says that he has read the amendment, copy of which is attached, and that the subject matter thereof was part of his invention, was invented before he filed his original application, above identified, for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, or in public use or on sale in this country for more than two years before the date of his application, and that the same has not been abandoned.

Albin H. Warth

Subscribed and sworn to before me this 3rd day of February, 1933.

(SEAL)

Florence W. Heinroth

NOTARY PUBLIC

MY COMMISSION EXPIRES [illegible]

1108

1352

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

MATERIAL FOR FACING BOTTLE CAPS
AND METHOD OF MAKING SAME,

Filed December 17, 1929,

Serial No. 414,614. Div. 50.

AMENDMENT UNDER RULE 78

February 3, 1933.

Hon. Commissioner of Patents,
Washington, D.C.

Sir:

We hereby authorize and request the entry of the following amendment under Rule 78, without withdrawing the application from issue:

IN THE SPECIFICATION

Page 1

Line 12, after the period insert the following paragraph:

--This application is a continuation-in-part of my copending application Serial No. 494,201, filed November 7, 1930, the latter being a division of my application Serial No. 159,743, filed January 7, 1927, and now Patent No. 1,788,260, granted January 6, 1931.--

Line 19, after the period insert the following: --Such a method is illustrated and described in my copending application Serial No. 492,546, filed October 31, 1930, as a division of my copending application Serial No. 360,895, filed May 5, 1929. As will be understood, this method of procedure is utilized in the production of caps of the "center spot" type, i.e. which are pro-

Duplicate

vided with a facing or "center spot" of less diameter than the cap or cushion disc within the cap. It is to the production of material for the manufacture of caps of this "center spot", that the present invention more particularly relates, although in its broader aspects it is useful in the manufacture of caps having facings other than "center spots". A further illustration of a cap of the "center spot" type is to be found in the patent to McManus 1,339,066, granted May 4, 1920.--

Same line (19), after "such" insert --"center spots" or--.

Line 23, after the period insert the following: --As will be understood, facings of the "center spot" type are applied within the formed cap to the cushion liner and this method of manufacture presents problems quite distinct from the manufacture of caps having facings coextensive with the cushion liner, since facings coextensive with the cushion liner are ordinarily produced by adhesively uniting superimposed facing material and cushion liner material, both in sheet form, thereafter simply punching laminated discs of facing material and cushion material from the laminated sheet.--

Page 7

Line 15, after the period insert the following: --The method involved in utilizing my invention need not be more fully described herein, since it is more fully disclosed and covered in my issued patent 1,788,260, granted January 6, 1931.--

IN THE CLAIMS

Add the following claim:

--13. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.--

_R_E_M_A_R_K_S_

The foregoing claim is submitted for the purpose of transferring from the copending allowed application Serial No. 494,201, the first of the two (2) claims allowed therein. The single claim transferred, and numbered 13 above, is a species claim subordinate to allowed claim 12 in this application. As stated, this application is a continuation-in-part of applicant's patent No. 1,788,260, granted January 6, 1931, and such part includes the subject matter of claims 12 and 13 herein.

The specification has been amplified somewhat in a purely descriptive manner to indicate the particular products or field of this invention and reference has been made to applicant's copending case (allowed) Serial No. 429,546, as illustrating the center spot type of cap to which this invention relates in its more specific aspects.

Respectfully,

JJD:M

Attorneys for Applicant.

1111

1355

Sir. 50 Room 4701

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 1

All communications respecting this application should give the serial number, date of filing, and name of the applicant

February 6, 1933

Applicant: Albin H. Barth

Ser. No. 414,614
Filed Dec. 17, 1929
For Material for Facing Bottle Caps etc.

Cushman, Bryant, Darby & Cushman,
American Security Bldg.,
Washington, D. C.

The amendment proposed has been entered under Rule 78.

Thomas E. Robertson
Commissioner of Patents.

1/1/9

BLANK

PAGE

1112

Feb. 28, 1933. A. H. WARTH 1,899,782

MATERIAL FOR FACING BOTTLE CAPS AND METHOD OF MAKING SAME

Filed Dec. 17, 1929

Fig. 1.

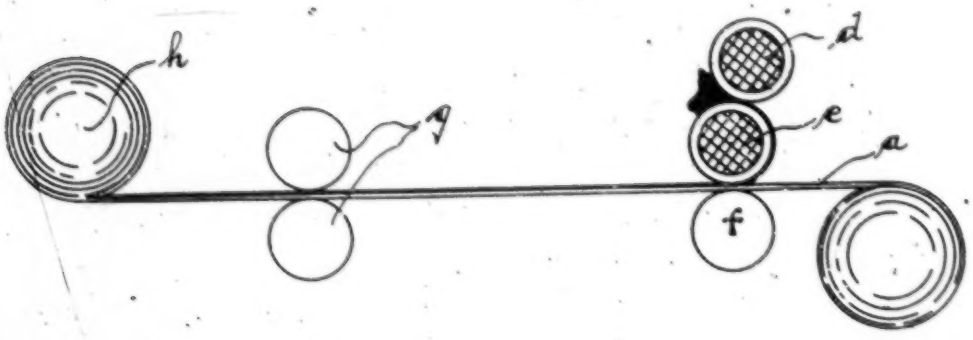


Fig. 2.



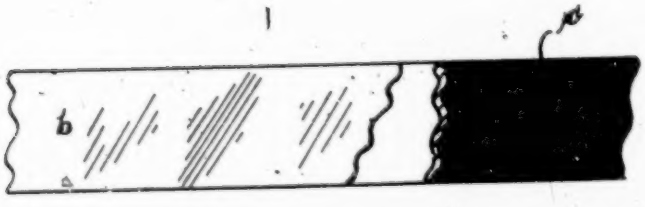


Fig. 3.

Albin H. Warth

INVENTOR

BY Frank P. Wentworth

his ATTORNEY.

BLANK

PAGE

BLANK

PAGE

Patented Feb. 28, 1933

1,899,782

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

MATERIAL FOR FACING BOTTLE CAPS AND METHOD OF MAKING SAME

Application filed December 17, 1929. Serial No. 414,614.

My invention relates to material for facing bottle caps and method of making same, and more particularly to strip material having applied to one face thereof a coating of gutta-percha.

This application is a continuation-in-part of my copending application Serial No. 494,201, filed November 7, 1930, the latter being a division of my application Serial No. 159,743, filed January 7, 1927, and now Patent No. 1,788,260, granted January 6, 1931.

Heretofore, facing material for bottle caps has been secured in position within the caps by means of gutta-percha tissue. In forming the facing disks and applying them to the caps, the practice has been to cut disks from superimposed strips of facing material and gutta-percha tissue, deposit the disks in the cap and apply heat for the purpose of fusing the gutta-percha tissue. Such a method is illustrated and described in my copending application Serial No. 492,546, filed October 31, 1930, as a division of my copending application Serial No. 360,895, filed May 5, 1929. As will be understood, this method of procedure is utilized in the production of caps of the "center spot" type, i. e. which are provided with a facing or "center spot" of less diameter than the cap or cushion disc within the cap. It is to the production of material for the manufacture of caps of this "center spot", that the present invention more particularly relates, although in its broader aspects it is useful in the manufacture of caps having facings other than "center spots". A further illustration of a cap of the "center spot" type is to be found in the patent to McManus 1,339,066, granted May 4, 1920. One difficulty in thus applying such "center spots" or disks to caps has arisen from the use of superimposed unconnected strips of facing material and of gutta-percha, the two strips being simultaneously fed from the same roll in relation to the punch of the face applying machine. As will be understood, facings of the "center spot" type are applied within the formed cap to the cushion liner and this method of manufacture presents problems quite distinct from the manufacture of caps having facings coextensive with the cushion liner, since facings coextensive with the cushion liner are ordinarily produced by adhesively uniting superimposed facing material and cushion liner material, both in sheet form, thereafter simply punching laminated discs of facing material and cushion material from the laminated sheet.

With this condition, there is not only difficulty in feeding the strip, but in cutting the gutta-percha with a clean sharp edge so as to ensure the binding stratum of gutta-percha being co-extensive in area with the facing disk. The gutta-percha binding stratum in such disks is intended not only to act as a cement, but also as a non-absorbent, gas impervious medium for avoiding possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shell itself or a cushion disk of cork or composition cork.

Furthermore, when thus using superimposed strips of the facing material and of gutta-percha tissue, it was essential, during the application of the disk to the cap, to bond the gutta-percha to both the material of the cap and the facing material.

It is desirable, in the use of facing disks of the character above referred to, that the gutta-percha stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of paper and gutta-percha, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of gutta-percha, thus avoiding all necessity for assembling strips of facing material and of gutta-percha tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

Page Tightly Bound

In the strip material of my invention, a very thin stratum of gutta-percha is evenly distributed upon one face of a strip of facing material. The gutta-percha is not only firmly bonded to this material, but is forced into the surface grain thereof, and has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

The manner of applying the gutta-percha to the facing strip is such as to ensure substantial uniformity in the condition of the gutta-percha throughout the strip by reason of the fact that those impurities or imperfections resulting from the working of gutta-percha in a mill will develop only along the edges of the facing material, where they may either be removed by trimming wide strips of the material, or will come within the wastage of narrow strips when cutting disks from such strips.

Furthermore, gutta-percha tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the re-winding and the disk applying, machines, and during the process of its production it has more or less of a longitudinally extending grain as distinguished from its normal granular formation.

In applying the gutta-percha to the fibrous or metallic facing material in accordance with my invention, the thickness of the gutta-percha is determined solely by that required to secure the desired intermediate stratum of the gutta-percha in the finished cap.

In the application of heat, when bonding the facing material to the cap, when utilizing gutta-percha tissue, a tendency of the gutta-percha is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the gutta-percha tissue when fused, I have been unable to determine. In the strip of my invention, however, the gutta-percha is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

So far as the method of producing the strip is concerned, it is such that the effective distribution of the gutta-percha throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the gutta-percha surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine.

It is desired to note that the surface of the strip to which the gutta-percha is not applied is always a highly polished surface, whether it be a varnish fibrous material such as paper, or a metal foil, so that the gutta-percha surface will not adhere thereto. By applying the gutta-percha directly to the surface of the paper and firmly bonding it there is no likelihood of difficulties arising as a result of the separation of the gutta-percha from the facing strip during the unwinding operation, either as a result of slight adherence, from suction or otherwise, such as frequently occurs when using the superimposed strips of the facing material and of gutta-percha tissue.

The invention consists primarily in material for facing bottle caps consisting of a facing strip of non-absorbent, gas impervious and acid resisting material, having bonded thereto, throughout one face thereof, a thin surfacing of gutta-percha; and in such other novel characteristics, and in the novel steps and practices of producing same, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawing,

Fig. 1 is a diagrammatic showing of the method of producing the facing material of the invention;

Fig. 2 is a longitudinal view, partly in cross section, of a fragmentary portion of said material; and

Fig. 3 is a face view thereof with a portion of the facing strip broken away.

Like letters refer to like parts throughout the several views.

In the accompanying drawing, the thickness dimensions are all greatly exaggerated. the thickness of the facing strip being less than five thousandths of an inch, and that of the gutta-percha surfacing, less than two thousandths of an inch.

In the embodiment of the invention shown in the drawing, the facing strip is composed of what is known as express paper which is a hard, tough paper having little absorptive properties. The properties inherent to the paper, however, are such, if properly finished, as to adapt it for use as facing material for bottle caps, although it is extremely difficult to satisfactorily cement such paper to the metal shell or cork cushion of such a closure.

In order to impart to one surface of the paper only the desired properties which will result in this strip presenting toward the contents of a bottle, a surface which is non-absorbent, gas impervious and acid resisting, I give a finish to this surface consisting of a coating of a varnish having the desired properties, and which includes therein resin.

China-wood oil, a drier and a plasticizer. This surface finish, in addition to having the properties above described, will also be sufficiently flexible to avoid the formation of cracks, or impart to the paper strip as a whole, a degree of brittleness which might result in the formation of such cracks or seams in the paper as would destroy the surface finish and permit the contents of the bottle to attack the body of the paper.

While express paper is a water finish paper, other similar papers may be used such as sulfite paper or bleached kraft paper.

The varnish finish coating above referred to is indicated at *b* in the drawing, this coating being very thin, merely sufficient to provide a continuous surface upon one side of the strip. The other side of the paper strip presents the normal finish of the paper, and has firmly bonded thereto a thin coating *c* of gutta-percha, covering the entire face of the strip and presenting a smooth continuous surface, having a general granular character resulting from the manner of applying same to the paper.

It is obvious that in the handling of the completed strip of facing material the gutta-percha facing *c* will be incapable of stretch or distortion because of its firm adherence to the non-elastic paper strip *a*. As compared with gutta-percha tissue, the quantity of gutta-percha required to secure the desired bonding action, when assembling the facing disk in a cap, is somewhat reduced.

In cutting disks from a strip of the material, there is no tendency toward mutilation of the gutta-percha by reason of possible drag in the cutting die, and each disk, as delivered from the die to within a cap, will present a continuous uninterrupted gutta-percha surface upon the disk, so as to ensure, by the subsequent application of heat and pressure, a bond between the disk and the cap co-extensive in area with the disk. The method involved in utilizing my invention need not be more fully described herein, since it is more fully disclosed and covered in my issued Patent 1,788,260, granted January 6, 1931.

Since, in applying the gutta-percha to the paper, the condition are such as to completely fill all surface pores, it is obvious that during the bonding action, in the facing machine there is no tendency of the gutta-percha, during and after fusing, leaving exposed, minute openings at any point of the surface of the paper.

By reason of the thinness of the gutta-percha facing *c*, there is no tendency toward the expression of any of the gutta-percha from between the facing disk and the portion of the cap to which it is applied.

The possibility of securing a clean cut by the dies for forming the disks, both as to the paper and as to the gutta-percha facing *c*, ensures an effective bond entirely about the edge of the disk, presenting a continuous barrier of non-absorptive, gas impervious and acid resisting material at the space between the disk and the cap which will effectively prevent the seepage of gas or fluids in a bottle between the disk and the portion of the cap to which it is applied.

In Fig. 1 of the drawing, I have illustrated the method of making the strip material of my invention. In the practice of this method, I use an ordinary mill with its heated rollers *d* and *e*. Operative in relation to the lower roller *e* is a backing roller *f*. A strip of the paper or other material *a* is drawn between the rollers *e* and *f* by means of the feed rollers *g*, by which it is passed to a re-wind mechanism indicated at *h*.

The method contemplates the feeding of the strip *a* between a backing roller *f*, and between one of the heated rolls of a gutta-percha mill *e*, thus applying a thin coating of gutta-percha while hot, to one surface only of the paper strip *a*, the gutta-percha hardening from its exposure to the surrounding temperature before engagement by the feed rollers *g*.

In feeding the strip *a* in the manner above described, the varnish surface thereof is presented downwardly, this surface having been applied to the paper prior to the feeding of the strip in the mill. In this manner a very thin coating of gutta-percha may be applied to one face of the strip *a*, to which it will firmly adhere while said strip is passing between the rollers *e* and *f*.

The thickness of the surface coating may be controlled by adjustment of the rollers *d* and *e*, and also by adjustment of the roller *f* in relation to the latter. In this manner, the strip *a* will have applied thereto a surfacing of gutta-percha which will be evenly distributed throughout the entire surface of the strip, and will present a substantially smooth exterior surface, notwithstanding surface irregularities in the paper itself. The smooth polished surface *c* will avoid any possibility of a surface stratum *c* adhering to the adjoining stratum *b* after the strip is re-wound and while it is being unwound in the disk applying machine, since the gutta-percha will not become tacky under normal factory temperatures.

It is preferable to apply the gutta-percha in the manner above described, to wide strips of paper which are cut into narrower strips of the desired width for use with bottle caps of different diameters.

The method described has been found to be applicable to the coating of paper strips with gutta-percha, and it is also applicable to coat metal foil, but in coating foil it is desirable to previously prepare, as by the application of a coating, one surface of the foil to receive the gutta-percha and permit it to adhere

1116

thereto with sufficient strength to permit a continuing application of gutta-percha to a strip as required by the method of my invention.

Facing material embodying the invention possesses the advantages that a substantially uniform and complete distribution of the gutta-percha throughout each disk cut from a strip, is assured. The additional labor of associating a strip of gutta-percha tissue and a strip of facing material is avoided, and higher speeds may be attained in the facing disk applying machine. By the method of applying fused gutta-percha to a facing strip, there is considerable saving, not only by the reduction in the amount of gutta-percha required, as compared with the use of gutta-percha tissue, but the preparation of the strips for use in the disk applying machines is very much reduced, and a more uniform quality in the bond between the disks and the caps is also assured.

It is preferable for the bottling of many liquids to employ facing material composed of paper of the general character herein described, as compared with the use of metal foils.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. As a new article of manufacture, material for facing bottle caps consisting of a paper strip, having applied to one surface thereof a surface coating of varnish consisting of resin, China-wood oil, a drier and a plasticizer, whereby said surface of the paper is made non-absorbent, gas impervious and acid resisting, and having bonded thereto, throughout the other surface thereof, a thin surfacing of gutta-percha.

2. As a new article of manufacture, bottle cap liner material in strip form comprising paper having a high gloss and having a coating of varnish on one surface of the paper and bonded to the other surface thereof a coating of gutta percha.

3. As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof.

4. As a new article of manufacture, bottle cap spotting material in strip form comprising express paper having a coating of varnish on one surface and bonded to the other surface thereof a coating of gutta percha.

5. As a new article of manufacture, bottle cap spotting material in strip form comprising bleached kraft paper having a coating of varnish on one surface and bonded to the other surface thereof a coating of gutta percha.

6. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of heat fusible, waterproof and flexible adhesive.

7. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of gutta percha.

8. As a new article of manufacture, highly flexible material in sheet or strip form adapted for the spotting of cushion discs of crown caps with center spots of less diameter than the disc diameter by the mere application of heat and pressure consisting of a continuous layer of material selected from a group consisting of metallic foil and varnish coated tough paper having relatively low absorptive properties, said layer being coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially nontacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

9. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

In witness whereof I have hereunto affixed my signature, this 11th day of December 1929.

ALBIN H. WARTH.

1117

1361

421

1929

CONTENTS:

12/17/29

1.	Application 1 papers.	25.	
2.	Power to Inspect & Make Copies Aug 7-1930	27.	
3.	Rev. and Power of Atty by Assignee Sept 9/30	28.	
4.	Notices of Revocation and Acceptance Sept 8/30	29.	
5.	Letter OCT 7 - 1930 new	30.	
6.	Amendt & Affs. Oct 29-1930	31.	
7.	Brief	32.	
8.	Letter DEC 20 1930	33.	
9.	Sub. Power of Atty Sept 30, 1931	34.	
10.	Amendt & Affs. Feb 1 1933	35.	
11.	Amendt C + Affs. Feb 3 1933	36.	
12.	Letter FEB 6 - 1933	37.	
13.		38.	
14.		39.	41 1/2 S1
15.		40.	
16.		41.	
17.		42.	
18.		43.	

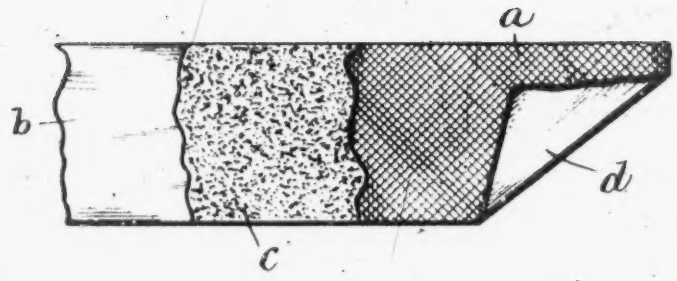
1118

C. E. McMANUS.

FACING MATERIAL FOR CORK OR OTHER DISKS FOR BOTTLE CAPS.

APPLICATION FILED MAY 9, 1916.

1,213,926. Patented Jan. 30, 1917.



Attest:

Chas. E. McManus Inventor:
by Frank P. Wentworth
his Atty.

UNITED STATES PATENT OFFICE.

CHARLES E. McMANUS, OF NEW YORK, N. Y.

FACING MATERIAL FOR CORK OR OTHER DISKS FOR BOTTLE-CAPS.

1,213,926. Specification of Letters Patent. Patented Jan. 30, 1917.

Application filed May 9, 1916. Serial No. 96,304.

To all whom it may concern:

Be it known that I, CHARLES E. McMANUS, a citizen of the United States, residing at the borough of Manhattan, city, county, and State of New York, have invented certain new and useful improvements in Facing Material for Cork or other Disks for Bottle-Caps, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to facing material for cork or other disks for bottle caps and more particularly to material of this kind wherein the face presented toward the contents of the bottle is a metal foil.

Heretofore cork or other disks for bottle caps have had the central portion thereof provided with a facing disk to protect the cork or other disk from the action of the contents of the bottle, and prevent contamination of the contents of the bottle, through contact with said cork or other disk. Various types of facing disks have been used, and have been applied to the cork or other disks, in different manners.

It has been attempted to use metal foil disks, but such have proven impracticable for the reason that it has been found extremely difficult to provide a stable bond between the cork or other disk and the metal foil disk, such being of vital importance to a disk faced with metal foil owing to the tendency of the agitators in the hopper of the bottling machine to separate the foil from the cork or other disk, or to raise the edge thereof therefrom. It has been proposed to slot the cork or other disk and form a cup of the metal foil and seat the rim of the cup in said slot, but this has not been found satisfactory, since it weakens the cork or other cushion and tends toward the formation of channels or leaks, through the slot. Furthermore, metal foil has practically no elasticity and low tensile strength and consequently in view of the difficulty of securing a permanent bond, coupled with the lack of elasticity of the foil preventing its yielding with the cork or other cushion disk, the difficulty of producing a workable metal faced cushion disk is practically insurmountable where metal alone is used for the facing material. In addition to the foregoing it is necessary to apply facing disks to the cork or other cushion disks so rapidly that they can be handled commercially only by machinery and metal foil alone cannot be fed satisfactorily in a machine and it is practically impossible to cut disks therefrom as required which will present a clean sharp edge.

By my invention, I am enabled to provide a facing material utilizing much thinner metal foil than is possible when using the metal foil alone, for the facing, the facing material being so constituted that when applied to the cork or other disk, it will be firmly bonded thereto and not liable to displacement through the contact therewith of the agitators in the hoppers of the capping machine. I secure these results by providing a flexible reinforcement or backing for the metal foil before it is applied to the cork or other disk, the metal foil being firmly bonded to this reinforcing backing and the backing being firmly bonded to the cork or other disk. This manner of forming the material permits the binding medium between the metal foil and the reinforcement or backing to firmly set before the facing disk is applied to the cork or other disk and permits greater uniformity in the distribution of the binding medium so as to avoid any weak spots which might tend toward the separation of the foil and its backing. This binding medium may also be selected with a view to its non-absorbent, gas impermeable property.

The material when ready for application to the cork or other disk is sufficiently rigid by reason of the binder between the metal foil and its backing, to insure a clean cutting of the disks, and the accurate feeding of the material in the machine. I also contemplate providing sufficient slack in the metal foil to permit that stretch incidental to the application of a cap to a bottle.

The invention consists in a facing material for cork or other disks for bottle caps, consisting of metal foil provided with a reinforcement or backing of fibrous material having one surface thereof gummed, and the other surface thereof firmly bonded to said metal foil by a stratum of a binding medium and in such other novel features of construction and combination of parts as are

hereinafter set forth and described and more particularly pointed out in the claims hereto appended.

In the accompanying drawings, I have shown a section of a strip of facing material embodying my invention.

In making the material of the invention, I preferably employ tin foil *a* which may be of a thickness no greater than .001 of an inch. This foil is backed or reinforced with fibrous material *b*, preferably paper, the foil being firmly bonded to the paper by a binding medium which is applied to the paper or other backing in a thin stratum *c* so as to insure uniformity of the bond between all parts of the adjoining surface of the foil and its backing. The paper or other backing has the surface thereof other than that to which the foil is to be or has been applied, gummed as indicated at *d* so as to permit the application of the facing to the cork or other disks by the application of a damping material to the face of the cork or other disk and thus facilitate the feeding and application of the casing material to the cork or other disk. By using a fibrous reinforcement or backing, the gum and the binding medium between the backing and the foil may readily penetrate this reinforcing backing material, to an extent to minimize any tendency of the facing disk to separate from the cork or other disk, or the foil to separate from said reinforcing or backing disk.

There are a number of binding mediums which may be used, such as sodium silicate, which will form a firm bond between the foil and the paper. Binding mediums of this type have the further advantage that they are insoluble when once set and form a continuous film which is substantially impermeable to gases. Since flexibility in the facing material is desirable, when I use sodium silicate, I mix with it a small percentage of glycerin in order to impart some flexibility to the stratum of binding material. I do not desire to limit myself to the use of sodium silicate, however, as there are many equivalent binding materials which will have the desired effect of insuring a permanent bond between a metal foil and a backing or reinforcement of paper or other fibrous material.

By applying the foil to the backing material and cutting the disks therefrom, I secure two distinct advantages; first, the binding medium between the foil and the backing or reinforcing material may be allowed to set before the disks are cut therefrom or are applied to the cork or other disk, thus securing a firm bond between the foil and its backing which it is impossible to obtain when the binding medium is applied to the foil, or the cork or other disk as the facing disk is applied thereto; second, the binding medium after it is set, will impart sufficient rigidity or crispness to the facing material to insure a clean sharp edge upon the facing disks when they are cut from a strip of the facing material.

In addition to the foregoing, I also secure the advantage that the paper or other reinforcing or backing material may have a suitable gum applied thereto prior to the feeding of the material in a machine, so that it is merely necessary to apply a damping medium to the cork or other disk to secure a firm bond between the reinforced metal foil disk and the cork or other disk. If desired the foil may be crinkled by being run between knurled rollers to produce sufficient slack therein to permit that stretch of the facing material incidental to the application of a cap to a bottle.

It is not my intention to limit the invention to the precise manner of assembling the facing material as herein described, it being apparent that the binding medium employed, as specifically referred to, is not material to the invention considered in its broader aspects.

Having described the invention, what I claim as new and desire to have protected by Letters Patent is:—

1. A facing material for cork or other disks for bottle caps consisting of metal foil provided with a reinforcement or backing of fibrous material having one surface thereof gummed and the other surface firmly bonded to said metal foil by a stratum of a binding medium.

2. A facing material for cork or other disks for bottle caps consisting of metal foil having a paper reinforcement or backing, one surface of said paper being gummed and the other surface thereof being firmly bonded to said metal foil by a stratum of a binding medium.

3. A facing material for cork or other disks for bottle caps consisting of metal foil having a paper reinforcement or backing, one surface of said paper being gummed and the other surface thereof being firmly bonded to said metal foil by a stratum of a binding medium, said paper reinforcement or backing being relatively thicker than said metal foil.

4. A facing material for cork or other disks for bottle caps consisting of metal foil provided with a reinforcement or backing of fibrous material having one surface gummed and the other surface firmly bonded to said metal foil by a stratum of a substantially non-absorbent, gas-impervious binding medium having relatively less flexibility than said metal foil or its backing.

5. A facing material for cork or other disks for bottle caps consisting of tin foil having a paper reinforcement or backing, one surface of said paper being gummed

and the other surface thereof being firmly bonded to said tin foil by a stratum of substantially non-absorbent gas impervious binding medium having relatively less flexibility than said tin foil or said paper, said paper being relatively thicker than said tin foil.

6. A facing material for cork or other disks for bottle caps consisting of metal foil provided with a reinforcement or backing of fibrous material having one surface thereof gummed and the other surface firmly bonded to said metal foil by a stratum of a binding medium, said metal foil being crinkled or indented to provide slack therein whereby said foil will be relieved from tensile strains when the bottle cap is applied to a bottle.

In witness whereof I have hereunto affixed my signature in the presence of two subscribing witnesses, this 8th day of May, 1916.

CHARLES E. McMANUS.

Witnesses:

JUDITH PARDEE,

CLARICE FRANCK.

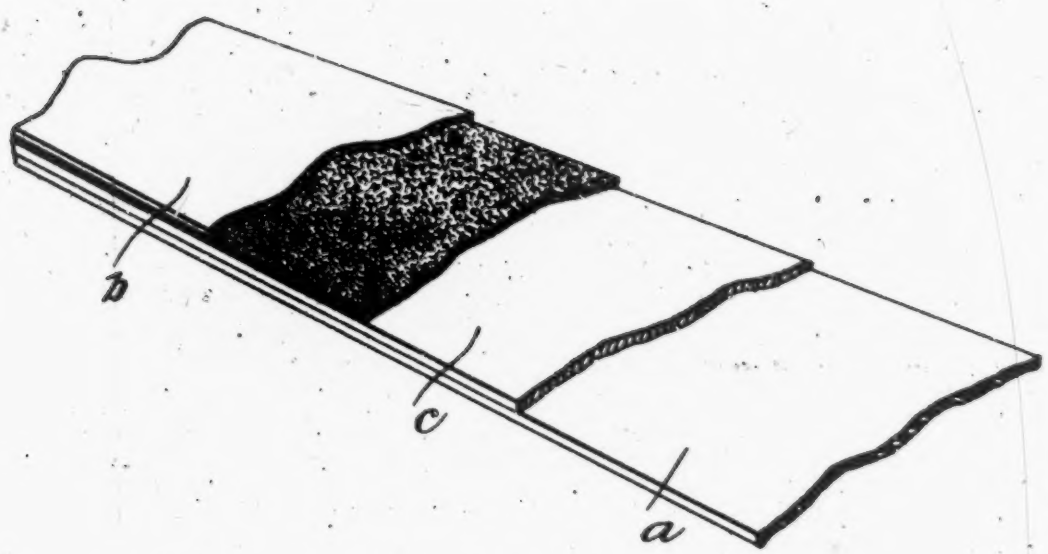
1122

Aug. 9, 1927. 1,638,541

C. E. McMANUS

CUSHION MATERIAL FOR BOTTLE CLOSURES

Filed July 6, 1922



Charles E. McManus INVENTOR

BY Frank P. Wentworth

his ATTORNEY.

Patented Aug. 9, 1927. 1,638,541

UNITED STATES PATENT OFFICE.

CHARLES E. McMANUS, OF NEW YORK, N. Y.

CUSHION MATERIAL FOR BOTTLE CLOSURES.

Application filed July 6, 1922. Serial No. 573,178.

My invention relates to cushion material for bottle closures, and more particularly to material adapted to be used in lieu of the natural, or composition, cork disks now commonly used in closures of the type generally known as "Crown caps."

The main object of my invention is to provide cushion material embodying therein in a unitary structure in strip form, material having sufficient resiliency to permit the formation of a tight seal when applied under pressure to the mouth of a bottle; sufficient rigidity to permit disks to be cut therefrom and applied to the metal shell of a closure by a closure assembling machine, and a facing impermeable to gas and liquid, to be presented toward the contents of a bottle, said facing having sufficient flexibility or compressibility to yield with the cushioning portion of the material as a closure containing same is applied to a bottle in the usual manner.

The cushion material embodying my invention, preferably consists of a plurality of superimposed laminæ firmly bonded together by means of suitable binders, adhesives or glues, one outer lamina being soft vulcanized rubber or rubber substitute, and the other outer lamina being of an oil or wax fibrous material such as paper, an intermediate lamina preferably being provided for the purpose of giving additional body to the material and ensuring a better bonding of the rubber or rubber substitute lamina and the oil or wax treated lamina with relation to each other in the strip material of which they form parts.

The invention consists primarily in cushion material for bottle closures embodying therein, in a unitary structure and in strip form, a lamina of resilient material and a facing lamina permanently united thereto and consisting of a liquid and gas impervious flexible fibrous material; and in such other novel characteristics as are hereinafter set forth and described and more particularly pointed out in the claims hereto appended.

In the accompanying drawing, I have illustrated in perspective a short section of a strip of cushion material embodying my invention, broken away to disclose the different laminæ.

In the embodiment of my invention shown in the drawing, the cushion material is composed of one outer or cushion lamina *a* of soft vulcanized rubber or of a resilient rubber substitute, and the other outer lamina or facing material *b* composed of suitable fibrous material, such as paper so treated with oil or wax as to be substantially impermeable by gas and liquid such as are ordinarily present in different beverages. Said cushion lamina *a* and said facing lamina *b* are united preferably by means of an intermediate lamina *c* of fibrous material, preferably untreated paper being used, since this lamina never contacts with the contents of a bottle and a better bond may be secured when this intermediate stratum is absorptive and permeable by the binder, adhesive or glue used in uniting the cushion and facing laminæ with relation to each other through said intermediate lamina.

The cushion lamina *a* may if desired be in the form of ordinary friction rubber applied to the lamina *c*, or may be bonded thereto by means of any suitable binder, adhesive or glue, as desired.

By reason of the impregnation of the lamina *b* with oil or wax and of the necessity for securing flexibility in the binder, adhesive or glue used for uniting the lamina *b* to the intermediate lamina *c*, I preferably provide a stratum of a binder, adhesive or glue such as an asphaltum cement which has the characteristic of being moisture repellant, between the laminæ *b* and *c*, although any other flexible adhesive may be used in lieu thereof.

In the production of cushion material embodying my invention, the various laminæ are independently fed and collected, the adhesive being applied thereto during the feeding operation, said strips when collected, being forced together under pressure and preferably in an elevated temperature so as to ensure a tight continuous joint between the adjacent laminæ.

The finished strip as a whole, will possess the necessary thickness, resiliency and flexibility to permit disks cut therefrom to be used instead of cork disks in bottle closures, and possesses the further advantage that it may be used in a machine in strip form and the cushion disks cut therefrom and applied directly to the metal shell, each disk being free from surface voids of a magnitude which will not be closed as a result of the application of pressure to the closure in applying it to a bottle.

Ordinarily the thickness of the material will be approximately one-half that of the

ordinary cushion disk, it being possible with this material to cup a disk when applying it to a shell and to fold or bend the edge of the disk upon itself so as to secure an edge seal about the mouth of a bottle of greater thickness than the portion of the cushion with which the top of the mouth contacts. This thickened portion will of necessity have relatively greater resiliency than the portion with which the top of a bottle contacts, so that a tight seal may be effected at the curvature at the top of the bottle as well as at the high point of the side of the bead. Furthermore, the cushion lamina *a* when a disk is cupped and folded as described, will engage both the bead of a bottle and the material of the shell of the closure, which is a highly desirable condition in such closures.

In the production of closures embodying the cushion material of my invention, the lamina *a* will be cemented to the shell of the closure, the arrangement of this lamina, however, being such that under no circumstances can moisture or gases from the bottle penetrate through the adhesive securing the material to the shell, since the rubber or rubber substitute is immune to the action of water, and chemicals or gases ordinarily found in beverages, and furthermore when cupped will vent such matter to atmosphere if it escapes through the seal.

It is not my intention to limit the invention to the exact adhesives or glues used, since there is a wide range of selection in such materials as well as in the fibrous materials in the laminæ *b* and *c*, nor to the method of producing the material.

I have found that the lamina *b* may be made of a special well known commercial product consisting of an oil impregnated paper known in the art as insulating paper, which may be readily handled and bonded while possessing the desired non-absorptive and gas impervious properties.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. Cushion material for bottle closures embodying therein, in a unitary structure and in strip form, a lamina of resilient material, a facing lamina consisting of liquid and gas impervious fibrous material, an intermediate lamina of fibrous material bonded to said resilient material, and a stratum of moisture resisting cement bonding said intermediate and said facing lamina.

2. Cushion material for bottle closures embodying therein, in a unitary structure and in strip form, a lamina of soft vulcanized rubber, a facing lamina consisting of liquid and gas impervious fibrous material, an intermediate lamina of fibrous material bonded to said lamina of soft vulcanized rubber, and a stratum of moisture resisting cement bonding said intermediate and said facing lamina.

3. Cushion material for bottle closures embodying therein in a unitary structure and in strip form, a lamina of resilient material, a facing lamina consisting of a liquid and gas impervious flexible fibrous material, and an intermediate lamina of absorptive, fibrous material readily permeable by a binding material, whereby the uniting of such other lamina is secured through the medium of said intermediate lamina.

4. Cushion material for bottle closures embodying therein in a unitary structure and in strip form, a lamina of soft vulcanized rubber, a facing lamina consisting of a liquid and gas impervious flexible fibrous material, and an intermediate lamina of absorptive, fibrous material readily permeable by a binding material, whereby the uniting of such other lamina is secured through the medium of said intermediate lamina.

5. Cushion material for bottle closures embodying therein in a unitary structure and in strip form, a lamina of soft vulcanized rubber, a facing lamina consisting of paper treated so as to be substantially impermeable by gases and liquids, and an intermediate lamina of non-treated paper, bonded respectively to said rubber lamina and said treated paper lamina, whereby the uniting of said other lamina is secured through the medium of said intermediate lamina.

In witness whereof I have hereunto affixed my signature, this 23rd day of June, 1922.

CHARLES E. McMANUS.

BLANK

PAGE

1125

Jan. 31, 1928. 1,657,802

L. G. LANGE

CAP INSULATOR AND MATERIAL AND PROCESS FOR MANUFACTURING THE SAME

Filed Dec. 16, 1924

Fig. 1.

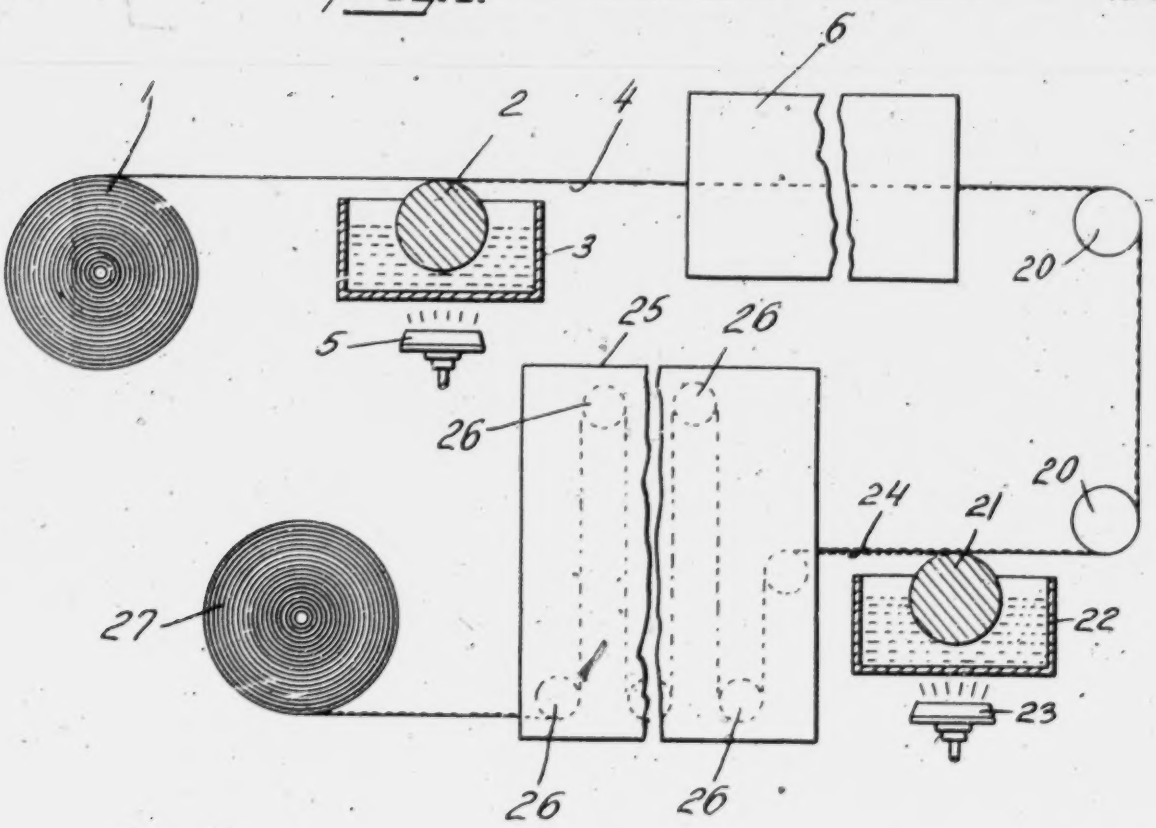
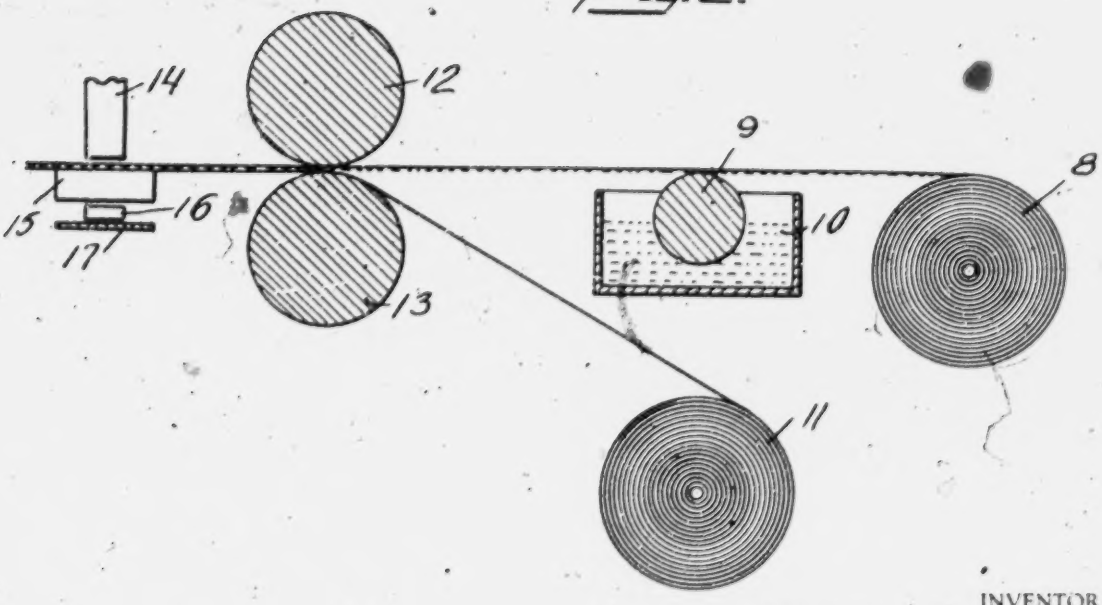


Fig. 2.



INVENTOR
Lourerm G. Lange

BY
Pennie, Davis, Marvin & Edmonds
ATTORNEYS

Patented Jan. 31, 1928. 1,657,802

UNITED STATES PATENT OFFICE.

LOUVERN G. LANGE, OF PASSAIC, NEW JERSEY.

CAP INSULATOR AND MATERIAL AND PROCESS FOR MANUFACTURING THE SAME.

Application filed December 16, 1924. Serial No. 756,909.

In the marketing of preserves, mayonise, mustard, and merchandise of like charter, it is customary to use glass bottles jars equipped with metal caps, and in der that the contents of the bottle may be sulated from the metal and may be kept ee from exposure to air and dirt, it has en customary to line these metal caps ith composite discs of paper, these discs be- g varnished on the side which contacts ith the contents of the bottle so that the ntents will not soak through the paper to e metal cap where corrosion might be t up.

The present invention relates to improved sulating discs and material therefor, and to process and sub-processes whereby these roducts are produced.

Fig. 1 is a diagrammatic side elevation f apparatus employed in the first portion of h process of the present invention, and

Fig. 2 is a similar view of apparatus emloyed in the latter portion in the process f my invention.

According to the present standard prac ice the process of making cap insulators ay be described as follows:

Starting with paper three feet wide and n a 500 ft. roll, the paper is varnished on ne side by being passed over a roller which ips into a tank of varnish and thus spreads e varnish in an even layer on one side of e paper. Papers known to the trade as raft paper, express paper or rope paper, nd with a thickness of from four to six housandths of an inch before being coated re suitable for this work. The varnish ay be a pure quick drying oil varnish and ay be applied of a thickness of from one housandth to two thousandths of an inch. fter being passed over the varnishing roll e continuous sheet is suspended on a loop- and dried with heat. It requires about e half hour to dry the paper while it is oving in looped form through the drier. hen varnish is applied to one side of a per sheet in this manner it soaks through e sheet to the opposite side. Uncalendered per is ordinarily used.

After the drying above described the per is again wound up in a roll and is ready for storage, or for distribution to the consumer.

A thin varnished sheet as above described is not thick enough for successful use as a cap insulator. It must be backed up with a thicker layer of porous paper or cardboard for otherwise the insulator could not be relied on to make a tight joint between the metal cap and the glass container to which the cap is attached, usually by screw threads.

Inasmuch as the varnish has soaked through to the back surface of the paper the attachment of such a thick and porous sheet of paper or cardboard presents some difficulties. Machines have been devised for doing this work, although these machines are somewhat complex and expensive, costing in the neighborhood of $2000.00.

In such machines varnished paper in the form of a roll is unwound and passed over a roller which dips in an adhesive in a tank where it is kept hot by a gas flame. Hot gum must be used because of the presence of varnish in and on the paper sheet. Suitable gums may be made from rosin, glycerine and non-drying oils which are now available at a cost of about 18¢ per pound.

The next step in the old process consists in passing the gummed sheet through a pair of press rolls where the hot gummed side is pressed into intimate contact with a sheet of pulp board or news board unwound from a roll. This porous backing sheet may have a thickness of from twenty five thousandths to fifty thousandths of an inch. When the continuous sheet comes from rollers it is cut into rectangular panels or sheets, say three feet square. These panels are then stacked and allowed to dry for about two days. Discs cannot be punched from them immediately after they have been formed because the adhesive is still plastic enough to "gum up" any cutting dies that might be used.

After drying or aging for about two days these flat panels or sheets, according to standard practice, are placed on a wooden chopping block in a crude sort of punch press and a hollow die is moved about by hand under the platen of the press to punch

Page Tightly Bound

discs from the paper panels or sheets. These discs accumulate in the hollow punch from which they ultimately are removed and placed by hand one at a time in the caps where they are to be used, the pulp board face being placed toward the metal.

The foregoing standard practice presents the disadvantages of requiring a relatively expensive machine, a larger storage capacity at the plant, an expensive adhesive, and considerable skill and experience in the manipulation of hot gum. Even under the best of conditions, blisters will develop in the composite sheet, and finished cap insulators punched therefrom will split apart during subsequent handling and use.

All of the foregoing disadvantages of the old practice are overcome by the process hereinafter described and claimed in detail.

Referring to Fig. 1 of the drawings, the reference numeral 1 designates a roll of kraft paper, express paper or rope paper of any suitable thickness, say .004" to .006". The paper is fed over a roll 2 dipping into a tank 3 and adapted to apply a layer 4 of water soluble gum to one surface of the paper. The gum may be maintained in liquid condition by a suitable burner 5. The continuous sheet is dried in a hot box 6 and is then in condition for the application of the varnish to the opposite face. The gum or adhesive may be of the dextrine type, or may be an animal glue or may be a fish glue.

A layer of quick drying oil varnish may then be applied to the uncoated surface of the paper sheet. The paper passing from the dryer 6 may pass over suitable idler rolls 20 to reverse it and place the gummed surface uppermost. It is then passed over a roll 21 which dips into a tank 22 containing the varnish. The varnish may be maintained at any desired temperature by means of a burner 23. After a coating 24 of varnish has been applied to the paper, it may be delivered through a festooned dryer 25 looping over roller 26 arranged in the top and bottom of a dryer. The paper, coated on both surfaces, may be then wound on a roll 27. This process of varnishing the paper follows the standard practice except that the presence of the water soluble gum on the reverse side of the paper sheet prevents the varnish from soaking through it to the reversed surface.

The layer of varnish so applied can advantageously be from .001" to .002" thick.

Paper assembled in 500 ft. rolls and coated on one side with a good oil varnish and coated on the other side with a water soluble gum can be conveniently transported and is, in itself, a marketable commodity, suitable for convenient shipment to the bottle cap maker or consumer.

The varnished surface may be waxed by known processes to meet special demands of the trade, paraffin, or any good bread wrapper wax, being used for that purpose. Similarly, when a highly waterproofed cap insulator is desired, the paper may be coated with nitro cellulose and gums such as commercial dammar before the varnish is applied, and the layer of varnish can then be waxed as before.

The next step in my complete process is illustrated diagrammatically in the drawings and consists in unwinding the gummed varnish sheet from roller 8 and passing it over a roller 9, dipping in water 10. While the gummed sheet is still wet with water it is brought into contact with a sheet of pulp board or news board twenty-five to fifty thousandths of an inch thick unwound from a roll 11. The two sheets are passed between rolls 12 and 13 and thus are brought into intimate contact. The composite sheet thus formed, instead of being cut into panels and put in storage for many hours, is immediately passed to a punch press of the battery type comprising a row of plungers 14 and dies 15, whereby the desired discs can be cut simultaneously across the entire width of the composite sheet. The fact that the water soluble gum has been used as the adhesive instead of a hot rosin gum permits this prompt punching of the discs. In commercial practice, it is convenient to deliver the discs through dies 15 directly into bottle caps 16 carried on a transverse conveyor 17. Much hand operation is thus eliminated.

In the practice above described the machine is of simple and inexpensive construction, the adhesive is cheap in cost and easy to manipulate to insure a permanent close adhesion between the two sheets, and there is no need for elaborate storage space in which to age the adhering materials. But equally important, there is a prompt and orderly delivery of the finished discs, right side up in the metal caps in which they are to remain without the intervention of any substantial amount of manual handling.

I claim:

1. In a process of manufacturing cap insulators, the steps which consist in coating one side of a sheet of tough paper with a water soluble gum, then drying the gum, then varnishing the other side of said sheet and drying the varnish, subsequently wetting the gummed surface with water and bringing into contact with the wet surface a porous padding sheet, rolling said sheets together and immediately punching therefrom discs suitable for use as cap insulators, substantially as described.

2. The method which comprises coating one surface of a sheet of tough dense paper with a water soluble gum, then drying the sheet and then coating the other side of said sheet with varnish and drying and waxing

the varnish and rolling said sheet into a roll adapted for convenient storage and shipment, subsequently unrolling said gummed and varnished sheet and wetting the gummed side with water, pressing a porous paper sheet into contact with the wet gummed surface as the paper is unrolled, punching from the composite sheet so formed discs suitable for use as cap insulators and simultaneously delivering said discs directly into the caps wherein they are to be used, substantially as described.

In testimony whereof I affix my signature.

LOUVERN G. LANGE.

BLANK

PAGE

1129

Patented May 13, 1930

1,758,610

UNITED STATES PATENT OFFICE

LOUVERN G. LANGE, OF PASSAIC, NEW JERSEY

ADHESIVE BACKING

No Drawing. Application filed July 3, 1929. Serial No. 375,883.

This invention relates to adhesives and has for its object the provision of certain improvements in the method of applying and using adhesives. More particularly the invention aims to provide an improved adhesive coating for varnished or oiled papers and an improved method of applying the same.

Bottle caps, covers, container sealing devices and the like frequently are provided with a thin strip of yieldable material between the cap itself and the neck of the bottle or jar. This yieldable material frequently is in the form of a thin sheet of natural or composition cork such, for example, as the insert of cork placed within the familiar crimped-on cap of beverage bottles.

In the heretofore customary method of using bottle caps and the like it is frequently necessary or desirable to protect the cork insert from the action of the contents of the bottle or protect the contents of the bottle from the material of the cork insert. This is necessary because when composition cork is used, the binder of the fragments of cork is frequently soluble in the contents of the bottle, thus contaminating the contents of the bottle. The natural cork contains imperfections and whenever the imperfections come in contact with the edge of the neck of the bottle there is a tendency for the contents to leak and the cork insert in the bottle cap fails to seal the contents of the bottle. This makes it desirable to employ some means for protecting the surface of the cork to cover up such imperfections as may occur in the surface adjacent to the edge of the bottle neck.

The cork insert or liner may be protected by a sheet of varnished paper, the unvarnished surface of which is bonded to the cork by a material such as gutta percha. The gutta percha in sheet form may be applied to the unvarnished surface of the sheet of varnished paper and blanks may be stamped from this composite material and applied to the cork insert by hot pressing. I prefer to apply the gutta percha to the varnished paper in liquid form as hereinafter described, for in this manner it is possible to employ sufficient gutta percha to accomplish the desired result without using as much varnished paper, or as much gutta percha as is necessary when strips, or separate sheets of these materials, are combined as set forth above.

The gutta percha is customarily combined with other gums or substances in order to impart to the gutta percha other desirable properties. Balata gum and various other resins are frequently used for this purpose. Throughout this specification and the appended claim the term gutta percha is used to designate the adhesive material whether it be gutta percha alone or in combination with other substances which may slightly alter its properties.

Clean washed gutta percha may be dissolved in an appropriate volatile solvent such for example as highly refined gasoline, solvent naphtha, toluene, benzene or xylene. This solution is heated until the mass becomes thick and viscid in which state it is applied in a thin layer to the back of the varnished paper and the remaining volatile solvent permitted to evaporate.

This method of applying the gutta percha to the varnished paper permits an evenly distributed coherent layer to be applied of any appropriate thickness. The freshly dried gutta percha backing is preferably covered with talc or soapstone to overcome the tackiness of the fresh gutta percha surface.

The coating of gutta percha in solution in gasoline or other appropriate solvent is spread on the back of the treated paper or fabric in such a manner that after the solvent evaporates there is left as a backing on the treated paper a precipitated layer of gutta percha. The spreading of the solution may be so controlled that substantially any thickness of dried film may be attained. I have found it advantageous to use a finished film of substantially one thousandth (.001) of an inch in thickness with many materials, as this provides an appropriate thickness to give thorough adhesion when the paper is hot pressed on another article.

The film of gutta percha deposited from solution may be treated in any advantageous manner to eliminate the tackiness of the freshly exposed surface. I have found it advantageous to dust the surface thoroughly

with powdered talc or soapstone. The adhering layer of powdered material does not materially impair the adhesion of the gutta percha film when applied by the hot pressing method for the powdered particles are then incorporated in the body of the melted gutta percha.

The use of varnished paper provides a laminated or multi-ply fabric of great tensile strength, for the film of varnish attached to one side of the paper, the tough fibres of the paper itself and the layer of gutta percha adhering to the back of the treated paper and the other article each provides an element of added strength to the laminated or multiply assembly.

The solvent method of applying the gutta percha reduces the cost of the finished fabric not only by appreciably reducing the thickness of the gutta percha film, but also by reducing the cost by providing a more economical method of handling and preparing the materials. The gutta percha may be applied in any appropriate manner, as for example, by spreading, flooding, brushing or spraying.

I have found in the practice of the invention that the type of paper used has a great bearing on the finished material. I have found it advantageous to use a paper which has a high gloss or a polished surface. This type of paper usually has a coating of very fine material which fills in the pores of the paper itself so that the adhesive backing which is appropriately placed on the paper does not absorb nto the body of the paper as readily as when one of the softer more open grained papers is used. In other words such paper is heavily sized. Thus the adhesive backing remains for the most part on the surface of the paper and does not penetrate to any large extent into the body of the material. The adhesive backing on this type of paper is thus substantially all available to be used as an adhesive to bind the paper to any other material when it is appropriately applied by means of pressure and heat.

The composite material of the present invention is far superior to any composition, or composite material, heretofore employed as a liner or filler for bottle caps and the like. It is an established fact that even the best grades of varnished paper will absorb moisture to the extent of 12 to 13 per cent and, accordingly, the use of varnished paper in making bottle cap liners, as heretofore suggested, has been a failure. Even though the varnished paper may form an air-tight seal, yet moisture penetrates the varnished paper and attacks the underlying material, and the contents of the container is no longer effectively sealed.

The use of metal foil as a cover for cork-inserts has likewise proved to be unsatisfactory, not alone from the standpoint of the high cost of the metal foil, but also because the foil is an extremely weak material mechanically and is easily ruptured by any irregularities in the edge of the container, or by excessive pressure applied to the cap or cover enclosing the container. Attempts have been made to provide a soft cushion for the metal foil but such practice is not a satisfactory solution of the problem because of the expense of the cushion material and the fact that such precautions fail to prevent rupture of the metal foil under abnormal conditions. The foil must be very thin in order to be sufficiently flexible to conform to the configuration of the top of the container and it is impossible to make foil complying with such requirements without having the foil very weak mechanically.

The applicant has found that he can eliminate entirely the use of metal foil and at the same time provide a perfect seal for the container. In general this result is accomplished by employing a continuous film of varnish and a continuous film of gutta percha which functions as a waterproof adhesive. Paper, or the like, may have one surface provided with a continuous film of varnish and the other provided with a continuous film of gutta percha and this composite material may be bonded to an underlying layer of cork, or other resilient material. As pointed out above, the paper is preferably heavily sized to insure continuity of the films of varnish and gutta percha. The varnish film is adapted to come in contact with the contents of the container and prevent the contents from coming in contact with the gutta percha film, except in so far as moisture from within the container penetrates the varnish film and reaches the gutta percha. The moisture however cannot penetrate the gutta percha and thus it appears that a perfect seal may be formed.

The penetration and character of the finished adhesive backing is also very largely dependent upon the type of solvents which is used to dissolve the mixed gums. These solvents also have a more or less permanent effect upon the precipitated adhesive. I am not certain whether this difference is due to the fact that certain solvents are retained for a longer period by some of the gums used or whether some of the solvents promote a more thorough and complete mixture of the gums themselves. It would seem more likely that the latter is the true explanation of the difference in the adhesive backings, for it is not likely that all of the gums are equally soluble in a single solvent, but with the mixed solvents there is an intimate mixture of all the gums used. The rate of evaporation of the solvents may have something to do with the physical characteristics of the finished adhesive and by an appropriate mixture of

solvents almost any desired rate of evaporation may be obtained.

I do not wish to confine myself to any specific mixture of gums or solvents for the adhesive backing must be able to take care of a wide range of conditions. These conditions may be atmospheric or temperature conditions, thus a harder adhesive may be made to withstand summer usage or transportation conditions which may be very severe. In shipping the finished material across the United States at certain times of the year, portions of the desert districts in the West are extremely hot and this heat might cause the disintegration or sticking of a very soft or low melting point adhesive.

At certain times the adhesive backed material may be used under very cold conditions. in this case the unwinding of the rolls might cause cracking of the paper itself due to the extreme stiffness of the adhesive backing. Thus it will be seen that the adhesive backing may comprise different gums or different mixtures of gums in order to take care of extreme climatic or thermal changes.

The thickness of the adhesive coating may be varied in order to meet different conditions of use. When the material is to be applied to a very porous medium such as felt, cardboard, or even some grades of cork, it is advisable to use a thicker coating of adhesive than when the adhesive backed material is to be applied to some impervious material in the nature of metal. I have found it advantageous to use an adhesive backing of from .001 to .002 of an inch in thickness, and have found that this thickness of adhesive backing is adequate for average conditions of use although a greater thickness has at times been used in order to meet adverse conditions.

The cost of applying and using an adhesive backing of .002 of an inch in thickness or even greater thickness is less than the cost of using a thin sheet of gutta percha of the same thickness, for the waste in the adhesive backed material is substantially nil. The waste in using the thin gutta percha sheets is considerable because these sheets are delicate and are easily torn in handling, so that it is more advantageous to use a thickness of the same character with the material sprayed on or definitely attached to the paper in the manner of the present invention than it is to use the same thickness of material with sheets of gutta percha.

My improved composite material comprising paper, which has been preferably heavily sized and having a varnished surface and a surface covered with gutta percha, is especially adapted for the purpose of providing liners or inserts for bottle caps, jar covers and the like

I claim:

As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof.

In testimony whereof I affix my signature.

LOUVERN G. LANGE.

1132

R. G. KOCH.

COVER FOR BOTTLE CAP CORKS.

APPLICATION FILED SEPT. 21, 1915. RENEWED JUNE 21, 1917.

1,238,156. Patented Aug. 28, 1917.

Fig 1



Fig 2

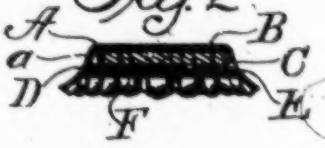
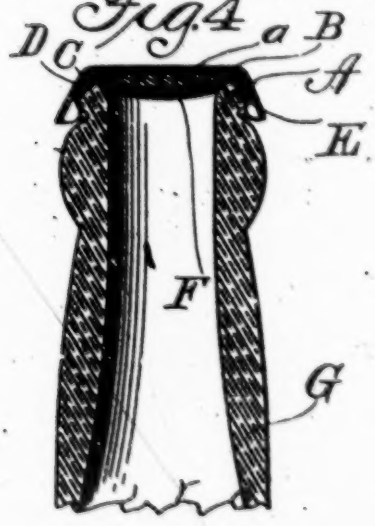


Fig 3



Fig 4



Inventor

Reinhold G. Koch,

By Edwin Guthrie,

Attorney

UNITED STATES PATENT OFFICE.

REINHOLD GUSTAV KOCH, OF NEW YORK, N. Y., ASSIGNOR TO SILVER CROWN DISK COMPANY, INC., A CORPORATION OF NEW YORK.

COVER FOR BOTTLE-CAP CORKS.

1,238,156. Specification of Letters Patent. Patented Aug. 28, 1917.

Application filed September 21, 1915, Serial No. 51,770. Renewed June 21, 1917. Serial No. 176,949.

To all whom it may concern:

Be it known that I, REINHOLD G. KOCH, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Covers for Bottle-Cap Corks, of which the following is a specification.

This invention relates to covers for bottle cap corks, and is intended to protect and preserve the cork disk from deterioration by exposure to the air, so that for an indefinite period of time the cork remains yielding and to a certain extent elastic. Furthermore, it is intended as an object of this invention to produce, as a new article of manufacture, a cover for bottle cap corks comprising on one surface, termed in this description the outer surface, a layer of metal foil to prevent the contact of the liquid in a bottle with the cork disk. An intermediate sheet of flexible material having a fusible coating of soft rubber on its surface next to the metal foil, and a coating or layer of gutta percha on its other or inner surface, is caused by suitable heating to adhere to the foil and to the cork disk, as more fully hereinafter set forth.

The accompanying drawings illustrate the construction and arrangement of the elements of this invention. Figure 1 represents a bottom or plan view of an ordinary bottle cap provided with a cork disk. Fig. 2 is a cross-section of a bottle cap, the cork disk of which is protected by this invention. Owing to the fact that the paper intermediate sheet, the coating of adhesive and elastic materials thereon, and the metal foil outer layer, are each relatively very thin, and cannot be adequately illustrated in a drawing such as Fig. 2 of actual size, a descriptive view, Fig. 3, is introduced to show the various elements of this invention. Fig. 3 shows a cross-section of a bottle cap, to the cork of which this invention is applied, and the scale of drawing has been considerably increased. Fig. 4 is a vertical section of the neck of a bottle, the mouth of the bottle being closed by means of a bottle cap provided with this invention, and shown in cross-section.

Throughout the drawings and description, the same letter is employed to refer to the same part.

Considering the drawings, the metal cap A is provided with the usual cork disk *a*. It is advantageous to place in the shells or metal caps A, a mixture of tartaric acid, gum arabic and rosin, which when heat is applied acts to stick the cork disk to the cap. The layer of adhesive for that purpose in Fig. 3 of the drawings is marked by the reference letter B.

As best set forth in the descriptive illustration Fig. 3, there are shown below the cork disk *a*, four layers of material. The layer C immediately next to the lower surface of the cork is gutta percha. The second layer from the cork is the intermediate sheet of tough paper. I do not limit myself to the use of any particular kind of paper, but, prefer tough paper with some absorbent and elastic quality. The reference letter D marks the intermediate paper sheet. The third sheet from the cork disk is a layer of soft vulcanized rubber E, and the surface sheet is tin foil or other metal foil F. When the four layers of material are properly arranged as described and placed in an oven and heated to a point below that of boiling water, the gutta percha and rubber soften and will adhere to and protect the cork disk. The gutta percha also adheres to and partly permeates the paper sheet. The soft vulcanized rubber also softens by the heat, adhering to the paper sheet and to the tinfoil outer surface. It will be noted that the intermediate paper sheet which forms the body layer of this invention is in itself absorbent or interstitial and more or less compressible. It will also be observed that the adhering layer of soft rubber and the fusible layer of gutta percha are insoluble in water. It has been stated that the metal foil is the outer layer, and directly covers the mouth of the bottle.

When the cork and the different layers mentioned are arranged as shown in Fig. 3, and all heated together, the top of the cork is protected by the cap, and its lower surface is fully covered and shielded from the air. The rubber layer E, protected as it is by the tinfoil, remains soft and yielding for an indefinite period of time, and when the cap provided with this invention is applied to the mouth of a bottle G, the yielding rubber layer acts to prevent the tinfoil from being torn by the usual capping pres-

sure, although the covering as well as the cork are necessarily distorted as shown in Fig. 4.

In practice it has been found that a very large proportion of the cork disks used are defective, either by reason of natural perforations or failure of the substance of the cork through age or other causes. It sometimes happens that the cork disk has a disagreeable taste or odor, which is communicated to the contents of the bottle, particularly, if the bottle has been closed by the cap for some time. By the use of this invention, the metal foil surface F is directly against the mouth of the bottle and exposed to the liquid within it. There is neither taste nor smell from the metal foil no matter how long the bottle remains capped, and, even if the cork disk is a bad one its ill effect cannot reach the interior of the bottle.

While cork is mentioned as the impervious member or layer of the composite disk for bottle caps herein specified, any selected substitute for cork may be used as the body of the disk, provided the outer layer of metal foil is adequately protected against rupture by a sufficient backing layer or layers of yielding material substantially as set forth.

Having now described this invention together with its operation and use, I claim:—

1. As a new article of manufacture, a cover for bottle cap corks, comprising an outer surface layer of metal foil, an intermediate sheet of flexible non-metallic material, a layer of elastic material arranged between the said foil and intermediate sheet and adhering to both, and a layer of gutta percha upon the exposed side of the intermediate sheet.

2. As a new article of manufacture, a disk for the interior of a bottle cap, comprising an outer layer of metal foil, an insoluble layer of soft vulcanized rubber arranged next to the metal foil and adhesively attached thereto, a body layer of flexible and compressible material arranged next to the said rubber layer, and the rubber layer being adhesively attached to the said body layer, and a layer of fusible adhesive material arranged next to the other side of the said body layer and adhesively attached thereto.

3. As a new article of manufacture, a cover for bottle cap corks, comprising an outer surface layer of metal foil, an intermediate sheet of flexible material, an adhesive coating of soft rubber connecting the said sheet and metal foil, and a fusible coating or layer of gutta percha applied to the inner side of the said sheet.

4. As a new article of manufacture, a cover for bottle cap corks, comprising an outer surface layer of metal foil, an intermediate sheet of paper, an adhesive coating of soft rubber connecting the said sheet and the metal foil, and a fusible coating or layer of gutta percha applied to the other side of the said sheet.

5. As a new article of manufacture, a disk for the interior of a bottle cap, comprising an outer layer of metal foil, an insoluble layer of soft vulcanized rubber arranged next to the metal foil and adhesively attached thereto, a body layer of absorbent and compressible material arranged next to the said rubber layer, and the said ruber layer being adhesively attached to the said body layer and partly absorbed thereby, and a layer of fusible adhesive material arranged next to the other side of the said body layer, the said fusible material being adhesively attached to the said body layer and partly absorbed thereby.

In testimony whereof I affix my signature.

REINHOLD GUSTAV KOCH.

UNITED STATES PATENT OFFICE.

FREDERICK W. FARRELL, OF BROOKFIELD, MASSACHUSETTS, ASSIGNOR TO WILLIAM MacLAURIN, OF BROOKFIELD, MASSACHUSETTS.

SEALING-STRIP.

1,358,834. Specification of Letters Patent. Patented Nov. 16, 1920.

No Drawing. Application filed December 22, 1916. Serial No. 138,471.

To all whom it may concern:

Be it known that I, FREDERICK W. FARRELL, a citizen of the United States, residing at Brookfield, in the county of Worcester and State of Massachusetts, have invented an Improvement in Sealing-Strips, of which the following is a specification.

This invention has reference to an improved sealing strip, tape, or member.

In carrying this invention into practice my attention has been directed particularly to the production of a strip, tape, stay, member having adhesive material specially adapted for the sealing of cartons, cases or containers of various kinds, but useful to secure together any two articles or parts of the same article. It being one of the objects of the invention to provide said strip, tape or member with an adhesive material which avoids the objections to the sealing tapes or members heretofore used.

It is well known that in the art of packaging articles and material by the use of cartons or containers made of fiber board or somewhat similar manufactured board it is the custom to secure the closure flaps or parts of said cartons or containers by means of strips of paper adhesively secured in place to bind or bridge edges of said flaps or parts whereby to secure said flaps or parts to one another or to some adjacent part of the carton or container. One method of securing said strips of paper or tapes has been to coat the same with glue which became hard and non-sticky or non-tacky when dry whereby the coated strips or tapes could be rolled into rolls convenient for transportation and for handling by machines in the course of their application to the cartons or containers. Usually, as a step immediately preceding the application of these strips or tapes, it has been customary to pass such strips or tapes through moistening devices to supply moisture to the glue or render the same tacky or capable of adhering to the surface to which the strip was applied.

In the course of procedure just above briefly described it has been found difficult to exactly control or determine the amount of moisture supplied to the adhesive and usually it is found that if an undue amount of moisture is supplied the surplus moisture either is distributed over the machinery, which is objectionable, or said surplus moisture unduly dissolves the glue which militates against its adhesion. It is also found that said glue is unduly expensive.

The purpose of the present invention in its more specific aspect is to provide a tape, strip, member or material having a coating of an adhesive material which can be rendered tacky without the application thereto of moisture whereby injury to the machinery is avoided and the affixing of the tape, strip, member or material to the carton or container is rendered more positive. The alternative to the use of moisture or liquid of some kind to render the adhesive of said tape, strip, etc., tacky is the use of an adhesive which, normally non-tacky, becomes tacky under a suitable increase in temperature.

The use of rubber, gutta percha, gums and other somewhat similar materials for this purpose is at present inexpedient because of their cost.

After considerable experimentation with materials of a nature to become or to remain tacky without the use of moisture I find that Trinidad asphalt is well suited for the purpose and when applied as a thin coating to a strip or sheet of paper can be utilized as an extremely strong adhesive to secure said strip or sheet of paper to another paper article particularly when the adhesion of said parts is effected under heat and pressure. I find further however that such asphalt after its application to the strip, tape or member will not harden but will remain somewhat tacky whereby the handling of said strip, tape, etc., is so difficult as to be almost impracticable and the rolling of said sealing strip, tape, etc., will not be practical because the asphaltic coating will adhere to the clean surface of said strip in the winding and prevent unwinding of the same. I am of course aware of the use of various non-adhesive coatings of loose material supplied to paper having asphaltic coatings to prevent the sticking of said coatings when wound but such loose material is not desirable and the cost of such materials is prohibitive.

In further experimentation I find it practical from all points to so load the Trinidad asphalt with an inert substance preferably of a mineral nature as to reduce the tackiness of the asphalt under ordinary temperatures so that it can be readily handled without unduly adhering to parts coming in contact therewith while under an abnormal tem-

1136

perature said asphalt will become sufficiently tacky to effect the desired adhesion and thereafter will not be affected by moisture.

I carry out my invention by subjecting the refined Trinidad asphalt to a temperature of approximately 350° F. and gradually supplying thereto dry powdered clay in proportions of about one part of clay to two parts of asphalt and thoroughly mix the same. I have however used a greater proportion of the clay or mineral than that named and have obtained good results therefrom in a mixture of six or seven parts of clay to ten parts of asphalt. The adhesive thus produced is applied as a very thin coating to a base of paper or other fabric or material and some portion of said coating may partially enter and unite with the surface structure of said base paper, fabric or material without saturating the same as the back of said base should be clean and free from adhesive. Usually said adhesive is applied to comparatively wide strips or webs of the paper, fabric or material which latter is then preferably cut into narrow strips or tapes adapted for economical and convenient use. When said adhesive coating becomes dry the strips or tapes may be wound into rolls without the layers thereof sticking together.

In some cases when a comparatively small proportion of clay is used or when the asphalt is unduly tacky I find that it is desirable to reduce the tackiness of the surface of the adhesive after its application to the paper. When this latter course is desirable or necessary I prefer to apply to the surface of the adhesive a quantity of clay or similar inert mineral matter and apply a slight friction or rubbing thereto whereby the fine particles of said clay become mechanically incorporated with or received by the asphaltic surface of the adhesive and the superficial tackiness of said surface is reduced or neutralized without materially reducing the adhesive quality of the coating when subjected to a suitable heat.

The improved sealing tapes or strips are used by placing the same with the coated surface in contact with the surface to which said strip or tape is to be affixed and applying heat and pressure to the back or uncoated surface of the strip or tape. This heat and pressure need not be applied simultaneously as the tape or strip may be subjected to heat to render the adhesive tacky or semi-fluid slightly prior to the placing of the tape or strip in position on the article to which it is to be affixed and thereafter, before the adhesive becomes set, pressure may be applied to said tape or strip to spread the adhesive and, to some extent, to force said adhesive into the surface structure of the article to which said tape or strip has been thus applied.

As the improved adhesive is not materially affected by moisture in the atmosphere its adhesive binding qualities remain practically permanent after application.

In addition to its use as a sealing tape or strip to seal or secure two adjacent flaps or parts of a carton, container or wrapper, said adhesive strips or members may be used as corner stays for boxes or other stays or reinforcing members. Said adhesive strips may be used to secure together or bridge the adjacent edges of two pieces of veneer or of any other members or articles.

It is to be understood that the inert material used to neutralize or load the asphalt should be of such extreme fineness as to its particles that said particles neither individually nor collectively will prevent any material area or quality of the asphalt from reaching the surface to which said asphalt is intended to adhere when said asphalt is subjected to a suitable temperature. I do not therefore intend to claim herein, as such inert material, the use of sand, powdered soapstone or other flaky mineral substance.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. A sealing strip of the character described, comprising a strip of paper and a coating of asphaltum on said paper, said coating containing a sufficient proportion of pulverized mineral matter to render the asphaltum non-adhesive at normal temperatures but enabling the coating to become adhesive upon the application of heat thereto.

2. A sealing strip of the character described, comprising a strip of paper, a coating on said strip of asphaltum and pulverized mineral matter, the exposed surface of said coating having pulverized mineral matter, rubbed thereinto to render the surface of said coating non-adhesive at normal temperatures, but permitting said coating to become adhesive upon the application of heat thereto.

FREDERICK W. FARRELL.

Page Tightly Bound

BLANK

PAGE

1137

(No Model.)

D. W. JOHNSON.

SEALING DISK FOR JARS, &c.

No. 408,177. Patented July 30, 1889.

FIG. 1.

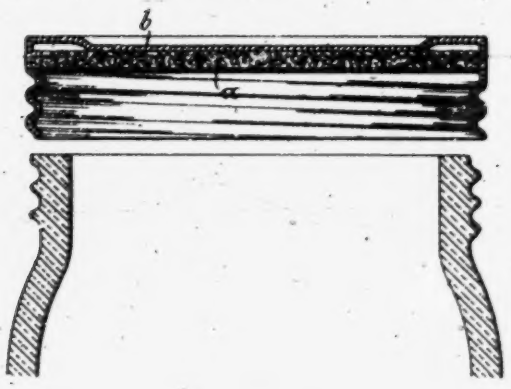


FIG. 8.

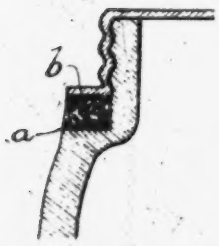


FIG. 2.

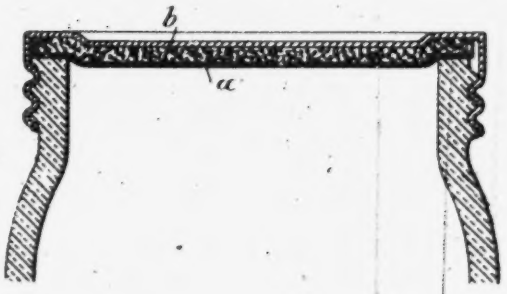


FIG. 3

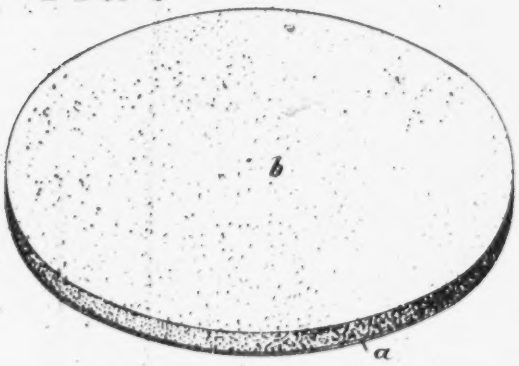


FIG. 4.

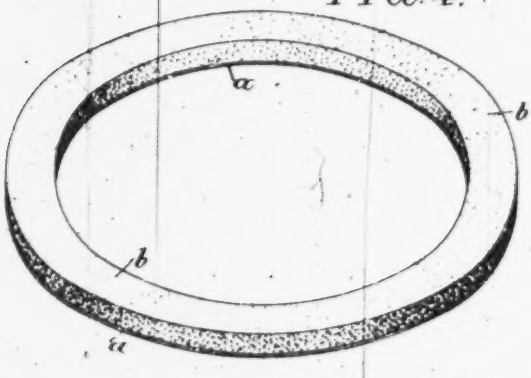


FIG. 5.

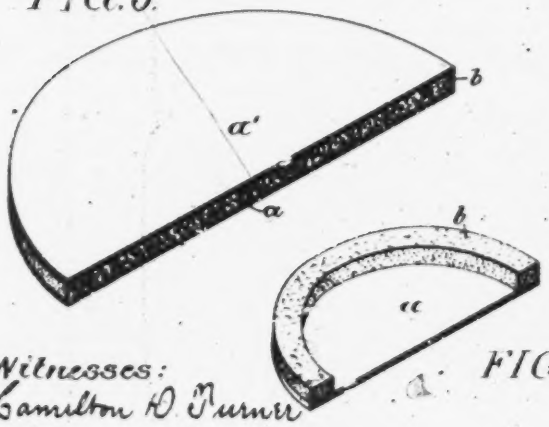
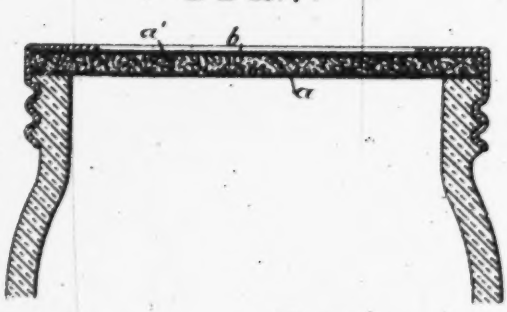


FIG. 6.

FIG. 7.



Witnesses:
Hamilton O. Turner
William D. Turner.

Inventor:
Daniel W. Johnson
by his Attorneys
Howson & Howson

UNITED STATES PATENT OFFICE.

DANIEL W. JOHNSON, OF PHILADELPHIA, PENNSYLVANIA.

SEALING-DISK FOR JARS, &c.

SPECIFICATION forming part of Letters Patent No. 408,177, dated July 30, 1889.

Application filed February 16, 1889. Serial No. 300,095. (No model.)

To all whom it may concern:

Be it known that I, DANIEL W. JOHNSON, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Sealing-Disks for Jars, &c., of which the following is a specification.

The object of my invention is to provide a simple and effective sealing-gasket for jars, bottles, boxes, and like receptacles.

In the accompanying drawings, Figure 1 is a sectional view of the upper portion of a jar with a detached cap having my improved sealing-gasket in position therein. Fig. 2 is sectional view showing the jar sealed. Fig. 3 is a perspective view of the gasket. Figs. 4, 5, and 6 are views of other forms of gasket embodying the invention; and Fig. 7 is a sectional view showing the gasket, Fig. 5, in position on a jar. Fig. 8 is a view showing the gasket or ring on the outside of the jar-mouth.

Disks or washers for sealing-jars and other vessels having removable lids, and which are required to be air-tight, have usually been made of rubber, leather, or paper; but I have found by experiments that neither of these will keep the vessel absolutely air-tight. Of the three rubber is to be preferred; but this deteriorates and loses its elastic properties, and if used as a seal in direct contact with the articles to be preserved often taints them. Leather is also objectionable on the same account, and paper has not sufficient elasticity to make a tight joint.

I have found by experiments that by making a water-proof sealing-gasket of parchment or parchmentized fiber, or their equivalents, secured to a felted body, I am enabled to hermetically seal the vessel, while at the same time the parchment will have no deteriorating effect upon the contents of the vessel.

Referring to Fig. 3, *a* represents a disk of parchment or parchmentized fiber, which is impervious to moisture, and to which is cemented in any suitable manner a disk *b*, of any suitable felted material—such as wool, paper, &c.—providing a soft and elastic backing for the parchment. This combined felt and parchment washer is placed in the cap of a jar, as in Fig. 1, for instance, and when the cap is screwed into position, as in Fig. 2, the felt between the cap and the seat around the mouth of the vessel will be tightly compressed, making an air and water tight joint, while at the same time the contact of the contents of the vessel with the parchment will not injuriously affect said contents.

In Fig. 4 I have shown the gasket in the form of a ring, which is used in the same manner as a rubber ring, being, for instance, seated on the shoulder of a jar, as shown in Fig. 8.

Fig. 5 shows a gasket with parchment or parchment-paper disks *a a'* on both sides and felted material *b* between the two outer disks, this form of gasket being particularly available for use with a cap having an open center, as shown in Fig. 7. The disk *a'* (shown in Fig. 5) may be of plain paper—that is to say, paper not waterproofed—so that a label can be readily pasted thereon.

In Fig. 6 I have shown a disk *a*, of parchment or other water-proof material, having secured to it a ring *b*, of felt, this ring being in such position as to be compressed between the cap and the seat around the mouth of the vessel, the center portion of the disk *a*, of water-proof material, being merely for the purpose of preventing the contents of the jar from coming in contact with the lid.

It will be understood that in place of the felt, as shown, a soft yielding woven fabric may be used; but I prefer in all cases to use the felt.

I claim as my invention—

1. A sealing-gasket for jars or other vessels, having a base of water-proof material backed with and secured to a felted material, substantially as described.

2. A sealing-gasket consisting of a body of felted material having water-proof material secured to its opposite faces, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL W. JOHNSON.

Witnesses:
WILLIAM D. CONNER,
HENRY HOWSON.

1139

C. R. KEERAN.

TOP FOR JARS.

APPLICATION FILED MAR. 31, 1909.

957,064.

Patented May 3, 1910.

Fig. 1.

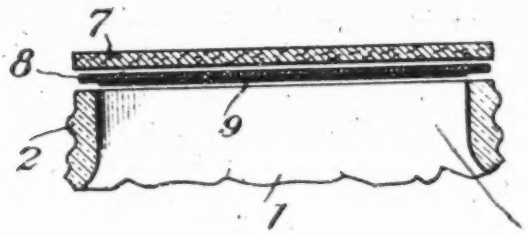


Fig. 2.

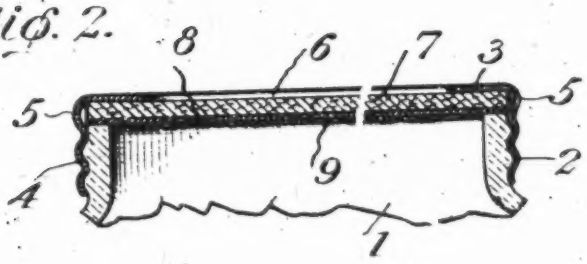


Fig. 3.

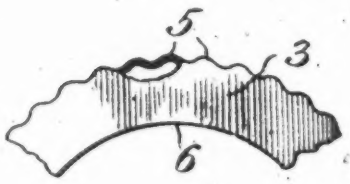
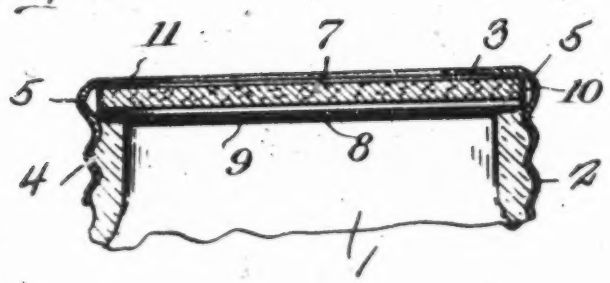


Fig. 4.



Inventor

Charles R. Keeran

By Victor J. Evans

Attorney

Witnesses

Fenton & Belt.

C. C. Hines.

UNITED STATES PATENT OFFICE.

CHARLES R. KEERAN, OF BLOOMINGTON, ILLINOIS.

TOP FOR JARS.

957,664. Specification of Letters Patent. Patented May 3, 1910.

Application filed March 31, 1909. Serial No. 486,899.

To all whom it may concern:

Be it known that I, CHARLES R. KEERAN, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented new and useful Improvements in Tops for Jars, of which the following is a specification.

This invention relates to a seal or closures for fruit jars and other bottles, jars and similar containers.

The main object of the invention is to provide a closure of the screw cap and sealing disk type in which an improved construction of seal is employed to hermetically close the bottle or jar without undue compression of the seal.

Another object is to provide a seal which is inexpensive of construction and free from the objections incident to the use of rubber seals, and which obviates the necessity of employing enameled or porcelain-lined caps in order to prevent corrosion, thus decreasing the cost of manufacture.

Still another object is to provide a seal having improved means for maintaining a waxed disk out of contact with the cap, whereby the cap is prevented from becoming fastened to the jar by the wax and is adapted to be removed without first heating the jar to melt the wax.

In the accompanying drawing:—Figure 1 is a vertical section through the neck of a jar showing the seal in position for application. Fig. 2 is a similar view showing the neck sealed by the seal and cap. Fig. 3 is a top plan view of a portion of the cap partially broken away. Fig. 4 is a sectional view through the seal as employed in conjunction with a flanged guard ring.

Referring to the drawing, 1 designates the neck of a jar, bottle or other container having external screw threads 2, and 3 designates a metal cap having a threaded flange 4 to engage said threads 2, above its threads the flange of the cap is formed with comparatively coarse external corrugations 5, providing a milled grip for convenience in applying and removing the cap, and which corrugations also serve an additional function, as hereinafter described. The construction of seal employed allows a cap having an open center top to be employed without detriment, *i. e.*, a top having an opening 6 and consisting simply of a circular rim.

The seal employed in conjunction with the cap comprises an upper disk or liner 7 and a lower disk or liner 8. The disk 7 which forms a yielding backing for the disk 8, is formed of comparatively soft pulp board or its equivalent, while the disk 8 is composed of some soft porous material, such as blotting paper saturated with sealing wax, rubber or any of the compositions of the latter which melt at a temperature somewhat higher than normal atmospheric temperature. The disks 7 are coextensive in diameter with each other and with the internal diameter of the milled portion of the cap and external diameter of the rim edge of the neck 1. Both disks are thus adapted to fit snugly within the upper portion of the cap with the disk 7 bearing against and closing the opening 6 in the top of the cap, so that the disk 8 may rest upon the rim edge of the neck with the edges of both disks flush with the outer surface of said neck. To the under side of the disk 8 is secured a steam and water-proof disk 9 of oiled paper or any suitable material which is coextensive in diameter to the internal diameter of the neck and is adapted to fit within and bear peripherally against the same.

In use, the fruit or other substance to be preserved is poured while hot into the jar, the disks placed upon the edge of the neck as shown, the cap screwed on as far as it will go easily, and the jar allowed to stand a few minutes. The heat from the contents of the jar will soften the wax or other equivalent material saturating the disk 8, and then the cap is screwed on tightly thus embedding the rim of the neck in the waxed disk, by which a perfect hermetic seal is secured. In this operation the disk 7 will also be caused to adhere to the disk 8 by the wax, and the latter named disk will adhere so strongly to the neck that the cap may be removed and the vessel inverted and roughly handled without breaking the seal. In putting up cold goods, the waxed disk is heated in some other suitable manner prior to application and th cap screwed fully on. The disk 9 not only prevents any portion of the fused wax from entering the jar but also prevents contact of the contents

of the jar with the disk 8, and coöperates with the latter to form a more perfect seal.

It will be observed that the disks 7 and 8 completely close the joint between the neck and cap, so that no portion of the contents of the jar can come into contact with the cap. Hence, the necessity of employing an enameled or porcelain-lined cap to prevent corrosion is obviated with resulting economy. By forming the outwardly projecting corrugations on the cap the edges of the disks are allowed to lie flush with the exterior of the neck, so that they finally cover the rim edge thereof. Of course, this could be accomplished by making the cap smaller at the top and leaving off the corrugations. However, if this were done, when a wax seal is used the cap would become sealed so tightly that it would almost defy removal without heating, but even though some of the wax will stick the edges of the disks 7 and 8 to the inside points of these corrugations the portions of the wax will break loose much easier when it is desired to unscrew the cap. It will also be observed that by using a seal of the character described, the necessity of compressing the seal to an objectionable degree by a very tight screwing on of the cap as is necessary in using ordinary paper or rubber gaskets, is avoided with manifest advantages, and accordingly the cap may be made of thinner metal and with an open center, as before described, as a very strong cap is not necessary. The cost of producing the cap is therefore decreased without impairing the strength of the seal.

If desired, the annular rim or top of the cap may be depressed by inclining it slightly downward toward the opening 6, as shown in Fig. 2, thus adapting it to more effectually confine the center of the seal and sustain it against any internal pressure.

The name or trade-mark of the manufacturer or any desired printed matter may be suitably arranged on the disk 7 for display through the opening 6.

If desired, a guard ring 10 of metal or other preferred material may be provided to inclose the edges of the disks 7 and 8 said ring having an inturned flange 11 to project over upon the upper surface of the disk 7, so as to prevent contact between said disks and the cap and sticking of the disks to the cap by the sealing wax or other material. This will obviate the necessity of heating the cap to soften the wax to allow the cap to be removed and enable a cap without the corrugations to be used if so desired. Hence the cap may be easily screwed off and the seal cut away by a knife without injury or heated to soften the wax, when it may be easily removed.

Having thus fully described the invention, what I claim as new is:—

1. A closure for receptacles comprising an inner sealing disk of compressible material saturated with a sticky fusible material and adapted to rest directly upon the rim of the receptacle, an outer sealing disk backing the same, and a cap to inclose said disks and adapted to engage the receptacle.

2. A closure for receptacles comprising a sealing disk of porous compressible material saturated with a sticky fusible substance, said disk adapted to rest directly upon the rim of the receptacle, and a cap to inclose said disk and adapted for engagement with a receptacle.

3. A closure for receptacles comprising an inner sealing disk of porous compressible material saturated with a sticky fusible substance, and adapted to rest directly upon the rim of the receptacle, an outer sealing disk of compressible material backing said inner disk, and a cap inclosing said disks and adapted for engagement with a receptacle.

4. A closure for receptacles comprising an inner sealing disk of porous compressible material saturated with a sticky fusible substance and adapted to rest directly upon the rim of the receptacle, an outer sealing disk of compressible material backing said inner disk, a moisture-proof disk upon the inner face of said inner disk and of less diameter than the same, and a cap to inclose said inner and outer disks and adapted for engagement with a receptacle.

5. A closure for receptacles comprising a cap having an open center top and a threaded flange, the wall of the top being inclined inwardly and downwardly, an inner disk of porous compressible material saturated with a sticky fusible material and adapted to fit within the cap and rest directly upon the rim of the receptacle, and an outer disk of compressible material adapted to fit within the cap and to bear against said inclined wall.

6. A bottle seal comprising a cap having a flange threaded at its lower portion and provided above the threads with annular corrugations, an outer sealing disk formed of soft compressible material having its peripheral edge contacting with the corrugations, and an inner sealing disk coextensive in diameter with said outer sealing disk and composed of a porous material saturated with a sticky fusible substance and adapted to rest directly upon the rim of the receptacle.

7. A bottle seal comprising a cap having a flange threaded at its lower portion and provided above the threads with annular corrugations, the top wall of the cap being formed with a central opening and being inclined inwardly and downwardly toward said opening, an outer sealing disk formed of soft compressible material having its pe-

ripheral edge contacting with the corrugations and an inner sealing disk coextensive in diameter with said outer sealing disk and composed of a porous material saturated with a sticky fusible substance and adapted to rest directly upon the rim of the receptacle.

8. A bottle seal comprising a cap having a flange threaded at its lower portion and provided above the threads with annular corrugations, an outer sealing disk formed of soft compressible material having its peripheral edge contacting with the corrugations, an inner sealing disk coextensive in diameter with said outer sealing disk and composed of a porous material saturated with a sticky fusible substance and adapted to rest directly upon the rim of the receptacle, and a waterproof disk secured to the lower face of said inner sealing disk and of less diameter than the same.

9. A bottle seal comprising a cap having a flange threaded at its lower portion and provided above the threads with annular corrugations, the top wall of the cap being formed with a central opening and being inclined inwardly and downwardly toward said opening, an outer sealing disk formed of soft compressible material having its peripheral edge contacting with the corrugations, an inner sealing disk coextensive in diameter with said outer sealing disk and composed of a porous material saturated with a sticky fusible substance and adapted to rest directly upon the rim of the receptacle, and a water-proof disk secured to the lower face of said inner sealing disk and of less diameter than the same.

10. A seal for receptacles comprising a cap containing a porous disk saturated with a fusible material and a guard between said disk and the walls of the cap.

11. A seal for receptacles comprising a cap containing a porous disk saturated with a fusible material, and a flanged guard between said disk and the walls of the cap.

12. The combination with a receptacle having external screw threads, of a cap having a flange formed at its lower portion with engaging threads and between said threads and its crown portion with outstruck corrugations, a porous disk disposed within the cap and resting directly upon the rim of the receptacle and saturated with a sticky fusible material, a second disk arranged between said porous disk and the crown of the cap, said disks having their peripheral edges terminating in line with the outer edge of the rim of the receptacle and arranged to face the corrugations of the cap, and a waterproof disk on the under side of the porous disk and disposed within the mouth of the receptacle.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES R. KEERAN.

Witnesses:
F. E. Bailey,
Irma Buffham.

BLANK

PAGE

166

85796

Vol. III

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1937

No. 72

CROWN CORK & SEAL COMPANY, INC.,
PETITIONER,

vs.

FERDINAND GUTMANN CO., INC.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

PETITION FOR CERTIORARI FILED MAY 20, 1937.

CERTIORARI GRANTED OCTOBER 11, 1937.

BLANK

PAGE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1937

No. 72

CROWN CORK & SEAL COMPANY, INC.,
PETITIONER,

vs.

FERDINAND GUTMANN CO., INC.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

VOL. III

INDEX.

	Original	Print
Record from D. C. U. S., Eastern New York—Continued.		
Statement of the evidence—Continued.		
Defendant's Exhibits—Continued:		
GGG—Certified copy of file wrapper and contents of reissue patent No. 19,117.....	1387	1143
HHH—Warth Patent Reissue No. 19,117 and references set up in answer:		
Warth Patent in Suit Reissue No. 19,117	711	546
REFERENCES		
McManus, Patent No. 1,339,066.....	695	530
McManus, Patent No. 1,213,926.....	1362	1118
McManus, Patent No. 1,402,789.....	1421	1177
Alberti, Patent No. 1,199,026.....	1267	1022
Bartlett, Patent No. 998,288.....	1437	1193

JUDD & DETWEILER (INC.), PRINTERS, WASHINGTON, D. C., OCTOBER 28, 1937.

—1929

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued:

DEFENDANT'S EXHIBIT

	Original	Print
Marsa, Patent No. 1,603,786	1446	1202
Alberti, Patent No. 1,401,300	1449	1205
Wheeler, Patent No. 887,883	1460	1216
Painter, Patent No. 887,838	1471	1227
Painter, Patent No. 792,284	1478	1234
III—Certified copy of file wrapper and contents of patent 1,788,260	1484	1240
JJJ—Certified copy of file wrapper and contents of original application of Warth, Serial 360,895, referred to in patent 1,899,783	1540	1296
KKK—Warth patent No. 1,899,783 in suit and references set up in the answer:		
Warth Patent in Suit No. 1,899,783	705	540

REFERENCES

McManus, Patent No. 1,339,066	695	530
Smith et al., Patent No. 983,319	1292	1048
Koch, Patent No. 1,238,156	1376	1132
Stahl, Patent No. 1,215,737	1656	1412
Lange, Patent No. 1,779,884	1661	1417
Hanauer, Patent No. 671,191	1666	1422

DEFENDANT'S EXHIBIT

Keeran, Patent No. 957,064	1383	1139
Johnson, Patent No. 408,177	1381	1137
LLL—Certified copy of file wrapper and contents in patent No. 1,967,195, to Warth	1668	1424
MMM—Folder containing copy of patent 1,967,195 and references set forth in the answer:		
Warth Patent in Suit No. 1,967,195	716	551

REFERENCES

Alberti, Patent No. 1,199,026	1267	1022
McManus, Patent No. 1,339,066	695	530
McManus, Patent No. 1,213,926	1362	1118
McManus, Patent No. 1,402,780	1421	1177
Bartlett, Patent No. 993,288	1437	1193
Johnson Patent No. 1,852,578	746	575
Bogdanffy, Patent No. 1,169,608	1716	1472
Bogdanffy, Patent No. 1,053,565	1730	1486
Bogdanffy, Patent No. 1,053,898	1738	1494
Painter, Patent No. 468,226	1746	1502

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued:

Defendant's Exhibit	Original	Print
Alberti, Patent No. 1,401,300	1449	1205
Clark, Patent No. 1,134,031	1752	1508
Painter, Patent No. 792,284	1478	1234
Painter, Patent No. 887,838	1471	1227
Wheeler, Patent No. 887,883	1460	1216
NNN—Invoice from Gutmann to Goetz Brewing Co., dated August 14, 1928	1763	1519
OOO—Credit memorandum dated October 2, 1928, from Gutmann to Goetz	1764	1520
PPP—Invoice dated August 23rd, from Gutmann to Goetz	1765	1521
QQQ—Invoice from Gutmann to Goetz, dated August 31, 1928	1766	1522
RRR—Invoice dated September 21, 1928, from Guttmann to Goetz	1767	1523
SSS—Invoice dated October 26, 1928, from Guttmann to Goetz	1768	1524
TTT—Bundle of invoices from Gutmann to Goetz	1769	1525
VVV—Two letters dated August 22 and August 23, 1928	1813	1569
WWW—Letter from duPont to Gutmann, dated May 12, 1932	1817	1572
XXX—Tabulation of gross shipments of crowns made by Gutmann Co. from 1928 to 1934	1819	1572
ZZZ—Letter from Crown Cork & Seal Co. to Gutmann, dated December 10, 1928, with attached acknowledgment	1820	1573
CCCC—Paper showing test of pressure of plungers with springs, by Cohn	1821	1574
DDDD—Two papers covering 100 gross each of crowns with paper spot centers produced by witness Fries	1822	1574
EEEE—Nine orders from Crown Cap Mfg. Co., dated March 28, 1930, to October 2, 1930, including two without dates, to Ferdinand Gutmann Co. for placing spots on crowns	1823	1574
FFFF—Letter from Crown Cap Mfg. Co to Gutmann, dated April 23, 1929	1829	1575
GGGG—Invoices on stationery of Crown Cork & Seal Co. from June 1 to November 30, 1917	1830	1576
HHHH—Invoice for inserting spots in 600 gross of caps	1834	1580
IIII—Invoices from Crown Cork & Seal Co. to Kalak Water Co., July 23, 1920, and August 31, 1920	1835	1581

	Original	Print
Record from D. C. U. S., Eastern New York—Continued.		
Statement of the evidence—Continued.		
Defendant's Exhibits—Continued:		
JJJJ—Three invoices from Gutmann, dated December 16, 1918, July 16 and February 1, 1919, to Kalak Co.	1836	1582
LLLL—Report by Schwarz Laboratories of test on caps secured with center spots using 4620 adhesive for Gutmann	1839	1585
MMMM—Bill from duPont Co. to Gutmann, dated April 4, 1933	1842	1586
OOOO—Original interrogatories to plaintiff and plaintiff's answers to same	1843	1587
PPPP—Letter from plaintiff to defendant, dated October 13, and letter from defendant to plaintiff, dated October 10, and defendant's reply of October 14	1868	1605
RRRR—Certified copy of preliminary statement of Albin H. Warth in Interference No. 60,931	1871	1606
SSSS—Affidavit of John J. Darby, dated May 20, 1932	1872	1607
UUUU—License agreement between Crown Cork & Seal Co. and Lange	1877	1610
VVVV—Portion of order of United States for Southern District of New York, recorded on January 31, 1934, in Crown Cork & Seal Co. vs. Pennie, Davis, Marvin & Edmonds	1883	1613
XXXX—Advertisement in "Spot Crowns" of plaintiff, dated July, 1933	1886	1614
YYYY—Record of Interference 66,201	1887	1615
ZZZZ—McManus patent No. 1,339,066 and references set up in answer:		
McManus Patent in Suit No. 1,339,066.	695	530
REFERENCES		
American Cork & Seal Co., French Patent No. 415,794	739	571
Montaner & Co., French Patent No. 463,971	734	568
Demuth of 1913, British Patent No. 16,075	1907	1628
MacCormack, British Patent No. 26,297	1910	1631
Alberti, Patent No. 1,199,026	1267	1021
Jones, Patent No. 903,865	1913	163
Jones, Patent No. 1,110,138	1917	163
Bartlett, Patent No. 993,288	1437	119
Nielsen, Patent No. 1,195,392	1921	164
Knox, Patent No. 1,129,578	1638	1650

Record from D. C. U. S., Eastern New York—Continued.
Statement of the evidence—Continued.
Defendant's Exhibits—Continued:

Defendant's Exhibit	Original	Print
Johnson, Patent No. 408,177	1381	1137
Keeran, Patent No. 957,064	1383	1139
Recht, Patent No. 796,356	1942	1663
AAAAA—Certified copy of file wrapper and contents of application of Albin H. Warth, Serial No. 494,201	1946	1668
BBBBB—Certified copy of abandoned application of Albin H. Warth, filed August 21, 1926, Serial No. 130,631	2009	1731
DDDDD—Affidavit of John J. Darby of April 2, 1934, in Interference No. 66,201	2041	1763
EEEEE—Preliminary statement of Johnson in Interference No. 66,201	2043	1764
HHHHHH—Page 5 of "Beverage Journal", dated June, 1930	2045	1766
Opinion, Campbell, D. J.	2047	1767
Stipulation as to findings of fact and conclusions of law	2106	1807
Interlocutory decree	2107	1807
Defendant's petition for appeal	2111	1810
Defendant's order allowing appeal	2112	1811
Defendant's assignment of errors	2113	1811
Defendant's citation (omitted in printing)	2120	
Plaintiff's petition for appeal	2121	1816
Plaintiff's order allowing appeal	2122	1816
Plaintiff's assignment of errors	2122	1816
Plaintiff's citation (omitted in printing)	2124	
Stipulation and order waiving Equity Rule 75	2125	1818
Stipulation and order waiving bonds	2127	1818
Stipulation as to contents of record	2128	1819
Stipulation as to correctness of record	2144	1829
Clerk's certificate (omitted in printing)	2145	
Proceedings in U. S. C. C. A., Second Circuit	2146	1830
Opinion, Swan, J.	2146	1830
Dissenting opinion, Manton, J.	2151	1839
Judgment	2152	1839
Petition for rehearing (omitted in printing)	2154	
Orders denying petition for rehearing	2171	1840
Clerk's certificate	2174	1841
Order extending time within which to apply for writ of certiorari	2175	1843
Order allowing certiorari	2176	1843

BLANK

PAGE

1143
1387

DEFENDANT'S EXHIBIT G G G

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the

Reissue Letters Patent of

Albin H. Warth, Assignor, by Mesne Assignments, to Crown Cork & Seal Company, Inc.,

Number 19,117, Granted March 20, 1934,

for

Improvement in Processes of Producing Closures.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this nineteenth day of September, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-ninth.

ATTEST:

Chief of Division.

Commissioner of Patents.

11—9036
U. S. GOVERNMENT PRINTING OFFICE: 1934

1144

1388

3

NUMBER (Series of 1925)

707995

1934

REISSUE NO. 19,117

DATED MAR 20 1934

DIV. 14

(EX'R'S Book) 27-129 (33)

Name ALBIN H. BARTH,

Assignor by mesne assignments to Crown Cork & Seal Company, Inc., New York, N.Y., a corp. of New York

of BALTIMORE,

State of MARYLAND,

Invention PROCESS OF PRODUCING CLOSURES

APPLICATION FILED COMPLETE, JAN 23, 1934

PARTS OF APPLICATION FILED: Petition, Specification, Oath, Fee $30, Old Patent, Abstract of Title, V/ Sheets Drawings, ORDERED JAN 23, 1934

Original Patent No. 1,788,260 Date JAN. 6, 1931

Examined and Passed for Issue N.J. Brown Examiner Ex. Div. 14, 1934

Notice of Allowance February 10, 1934

Attorney CUSHMAN, DARBY & CUSHMAN, AMERICAN SECURITY BLDG CITY

Associate Attorney

No. of Claims Allowed 4 Class 113-90 Print Claim 3 only

Title as Allowed Process of Producing Closures

Division of Original Patent No. ____ granted 1933

1145

1389

707995 1

MAIL DIVISION
JAN 23 34

U. S. PATENT OFFICE
JAN 30 1934
DIVISION 14

TO THE COMMISSIONER OF PATENTS:

Re 19,117

Your Petitioner, ALBIN H. WARTH, a citizen of the United States, residing at Baltimore, State of Maryland, and whose post-office address is C/o Crown Cork & Seal Company, Inc., Baltimore, Maryland, prays that he may be allowed to surrender the Letters Patent No. 1,788,260 for an improvement in PROCESS OF PRODUCING CLOSURES granted to him Jan. 6, 1931, whereof CROWN CORK & SEAL COMPANY, INC., a corporation of New York, whose principal place of business is at Baltimore, Maryland, in whose behalf and with whose assent this application is made, is now the sole owner, by assignment, and that Letters Patent may be reissued to the said CROWN CORK & SEAL COMPANY, INC., for the same invention upon the annexed amended specification. With this petition is filed an abstract of title duly certified as required in such cases.

abstract of title by atty

And he hereby appoints, CUSHMAN, DARBY & CUSHMAN, a firm composed of Arlon V. Cushman, John J. Darby and William M. Cushman, of Washington, D. C., Register No. 7196, his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, to sign the drawings and to transact all business in the Patent Office connected therewith.

R.3

Signed at Baltimore, Maryland, this 27th day of January, 1934.

Albin H. Warth

CROWN CORK & SEAL COMPANY, INC., assignee of the entire interest in the above mentioned Letters Patent, hereby, through its duly authorized executives, assents to the accompanying application.

Frederick G. Gustafson
Vice-President

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

Be it Known, that I, ALBIN H. WARTH, a citizen of the United States, residing at Baltimore, State of Maryland, have invented new and useful improvements in PROCESS OF PRODUCING CLOSURES, of which the following is a specification:

This invention relates to a method of producing closures of the type in which a sealing disc has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disc usually made of cork. For some uses, the sealing discs are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork discs and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disc and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork discs by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shelf itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the

tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

19

It is desirable, in the use of facing discs of the character above referred to, that the adhesive stratum be as thin as possible and yet be continuous throughout the entire area of the facing disc, and particularly that it be uninterrupted about the edge of this disc, since at this point the disc should be firmly bonded so as to effectively seal the joint about the edge of the facing disc. When cutting and applying the discs of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disc cut from the strip

and the material of the cap to which such disc is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disc applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing discs and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is con-

sidered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or Chinawood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disc which is deposited on a cork, such assembling machinery being known in the art.

14

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300°F. maintained for about 30 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of

the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesives from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing discs. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disc, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in

area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disc it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

1158

4. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed or an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

Sig

In testimony whereof, I have hereunto set my hand this [illegible] day of [illegible] 1934.

Albin H. Warth.

Albin H. Warth

1403

1159

OATH

CITY OF BALTIMORE)
STATE OF MARYLAND) ss.

ALBIN H. WARTH, the above named Petitioner, being duly sworn, deposes and says that he does verily believe himself to be the original, first, and sole inventor of the improvement set forth and claimed in the foregoing specification and for which improvement he solicits a patent; that deponent does not know and does not believe that said improvement was ever before known or used; that deponent is a citizen of the United States of America, and resides at Baltimore, State of Maryland; that deponent verily believes that the Letters Patent referred to in the foregoing petition and specification and herewith surrendered are inoperative, for the reasons that the specification thereof is defective and insufficient, and that such defect and insufficiency consists in the typographical error in the specification that the coating is dried at a temperature of about 300°F. for thirty minutes instead of three minutes, and particularly in the failure to submit claims which include or recite that step in the method which involves the application of pressure, for example, by a plunger, while the thermo-plastic adhesive uniting the center spot to the cork disc is permitted to cool; and deponent further says that the errors which render such patent so inoperative arose from inadvertence, accident or mistake, and without any fradulent or deceptive intention on the part of deponent; that the following is a true specification of the errors which it is claimed constitut such inadvertence, accident or mistake relied upon:

As indicated by the record of the patent, applicant was the first to invent a process including the steps set forth in the two claims appearing in the original patent. The original application was prosecuted by applicant's attorneys with full recognition of this fact. Moreover, one step in applicant's method as disclosed in his specification is that the cooling of the assembled unit "may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suit-

able manner, being carried out to the congealing point of the coating or adhesive material" on the strip from which the center spot is punched. Since the issuance of the patent, however, and only very recently, it has come to applicant's attention that the claims allowed do not recite, in addition to the steps therein set forth, the step of applying pressure to the assembled unit while the coating or adhesive material is congealing. There was no intention either on the part of applicant or his attorneys to omit claims to this step of the method and, as a matter of fact, applicant has always been under the impression that the patent, as granted, included claims covering this step in the method. More particularly, the defect in the specification resides in the failure to set forth the invention somewhat more fully than the present claims by the presentation of claims such as the following:

> 3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.
>
> 4. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said

OCC/22

adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

That such errors so particularly specified arose as follows: Applicant explained to his original attorneys the complete method as set forth in the original application filed January 7, 1927, as Serial No. 159,743, and the said specification was prepared on the basis of information applicant conveyed to said attorneys. Upon the issuance of the patent on January 6, 1931, applicant reviewed the specification and claims and, being unfamiliar with the interpretation of claims, assumed from the fact that the specification referred to the application of pressure, and from the further fact that the claims allowed referred to the cooling and hardening of the adhesive, that this pressure step of the method was covered. Applicant is not skilled in patent procedure or the interpretation of claims and until recently informed by his attorneys that claims specifically defining the application of pressure would be allowable, in addition to the claims of the patent, and are in fact required in order to cover this additional step, did not consider that there was any defect or insufficient in the patent. When it did come to applicant's attention that the step of applying pressure during the cooling operation should be expressly recited in the claims, he immediately caused his present attorneys to present this application for reissue.

Albin H. Wasth

Sworn and subscribed to before me this 25th day of January, 1934.

Florence M. Deckrath
Notary Public.

MY COMMISSION EXPIRES MAY 8, 1934.

SEAL.

21

1162

1406

10-8.

No. 1788260

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Whereas ALBIN H. [illegible] Baltimore, Maryland,

assignor, by mesne assignments, to CROWN CORK & SEAL COMPANY, INC., of New York, N. Y., a corporation of New York,

SURRENDERED

HAS PRESENTED TO THE Commissioner of Patents A PETITION PRAYING FOR THE GRANT OF LETTERS PATENT FOR AN ALLEGED NEW AND USEFUL IMPROVEMENT IN

PROCESSES OF PRODUCING CLOSURES,
Metal Foil Spot Crown

A DESCRIPTION OF WHICH INVENTION IS CONTAINED IN THE SPECIFICATION OF WHICH A COPY IS HERETO ANNEXED AND MADE A PART HEREOF, AND COMPLIED WITH THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED, AND

Whereas UPON DUE EXAMINATION MADE THE SAID CLAIMANT is ADJUDGED TO BE JUSTLY ENTITLED TO A PATENT UNDER THE LAW.

SURRENDERED

Now THEREFORE THESE Letters Patent ARE TO GRANT UNTO THE SAID

Crown Cork & Seal Company, Inc., its successors

OR ASSIGNS

FOR THE TERM OF SEVENTEEN YEARS FROM THE DATE OF THIS GRANT

THE EXCLUSIVE RIGHT TO MAKE, USE AND VEND THE SAID INVENTION THROUGHOUT THE UNITED STATES AND THE TERRITORIES THEREOF.

In testimony whereof, I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington this sixth day of January, in the year of our Lord one thousand nine hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

SURRENDERED

Attest:

G. P. Decker
Law Examiner.

Thomas E. Robertson
Commissioner of Patents

BLANK

PAGE

1163

Jan. 6, 1931. A H. WARTH 1,788,260

PROCESS OF PRODUCING CLOSURES

Filed Jan. 7, 1927

Fig. 1.

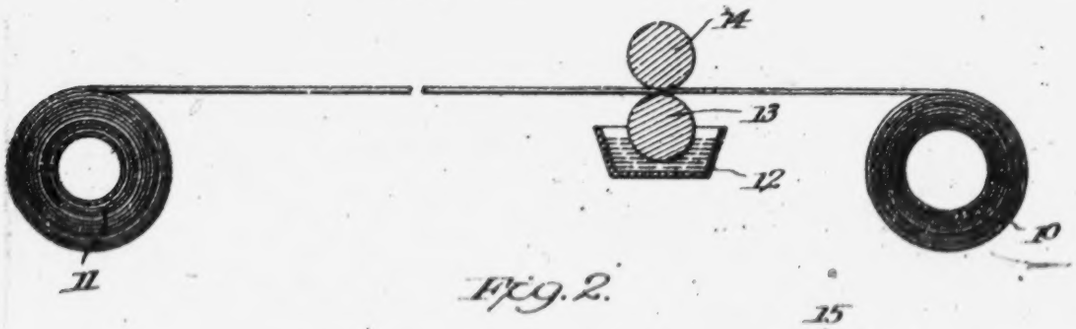


Fig. 2.

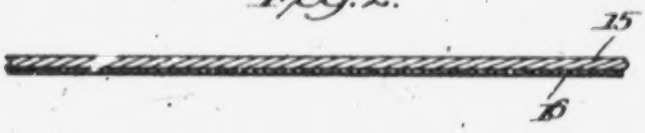


Fig. 3.

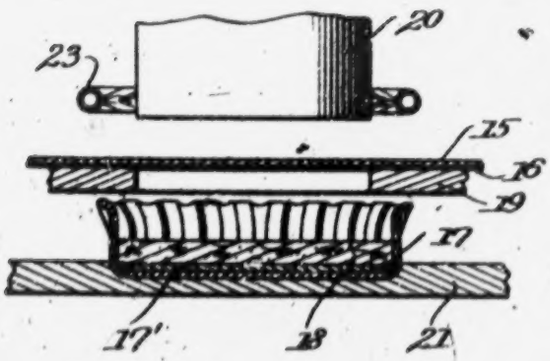


Fig. 4.

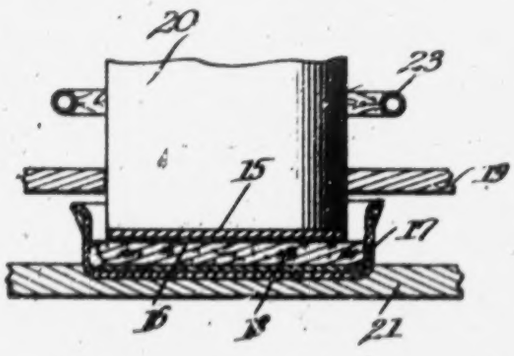


Fig. 5.

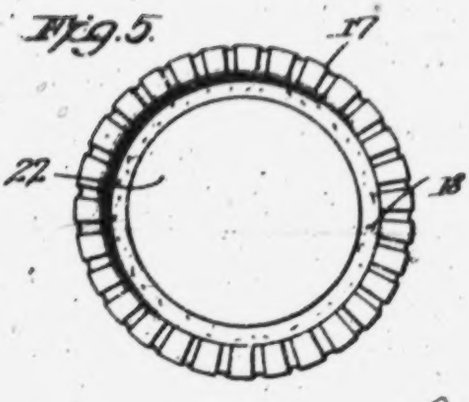
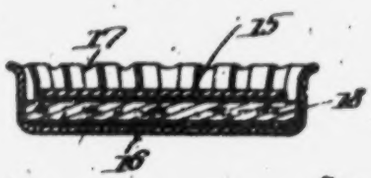


Fig. 6.



Inventor

Albin H. Warth.

By Cushman Bryant & Doyle

Attorneys

1164

Patented Jan. 6, 1931

1,788,260

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CROWN CORK & SEAL COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

PROCESS OF PRODUCING CLOSURES

REISSUED

Application filed January 7, 1927. Serial No. 159,743.

This invention relates to a method of producing closures of the type in which a sealing disk has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shelf itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing

bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300° F. maintained for about 30 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots

are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17′; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally

disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

In testimony whereof, I have hereunto set my hand.

ALBIN H. WARTH.

BLANK

PAGE

1168

1412

Jan. 6, 1931. A. H. WARTH 1,788,260

PROCESS OF PRODUCING CLOSURES

Filed Jan. 7, 1927

Print of drawing as originally filed.

Fig. 1.

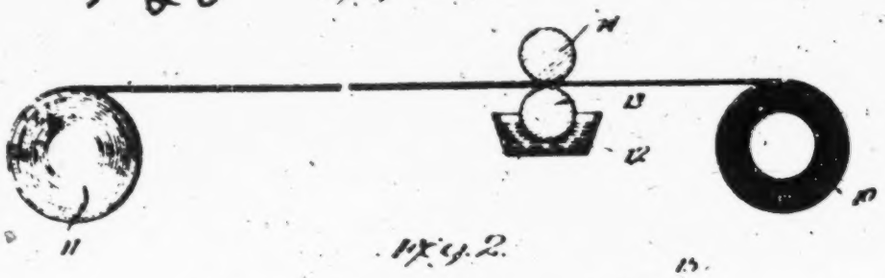


Fig. 2.

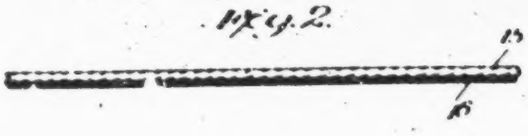


Fig. 3.

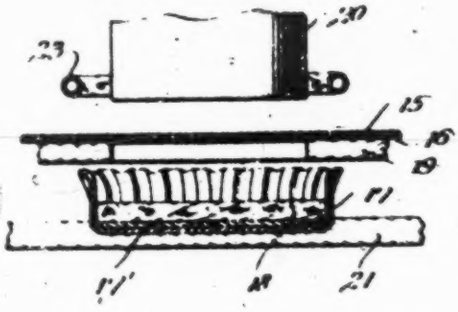


Fig. 4.

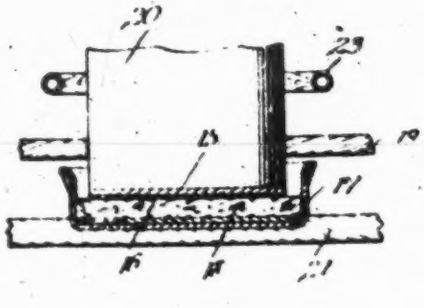


Fig. 5.

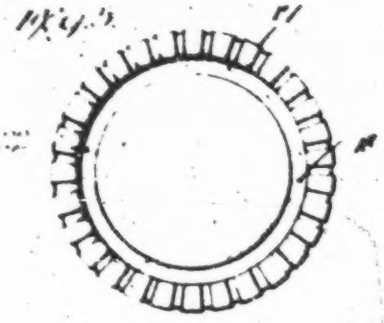
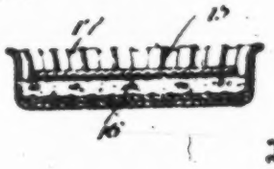


Fig. 6.



Inventor

Albin H. Warth.

By Cushman Darby & Cushman

Attorneys

1169

1413

2

Div. 14

TITLE REPORT

No. 1,788,260

Name Albin H. Warth

The title appears from the assignment records to be vested in:

Crown Cork & Seal Company, Inc., New York, N. Y., a Corp. of New York. (mesne)

Examined up to and including Jan. 17, 1934

This certificate dated Jan. 29, 1934

Carl Gray
Chief of Assignment Division

No further assignments appear to have been received for record including

1170

1414

MAIL DIVISION
JAN 23 34
U.S. PATENT OFFICE

ARLON V CUSHMAN
JOHN J DARBY
WILLIAM M CUSHMAN

CARROLL J McGUIRE
MAX C LOUIS
GORHAM P FREER
JAMES W DENT
C WILLARD HAYES
RODGER D GESSFORD
HARRY C RILEY
KERN E FOLKERS
GEORGE W PORTER
JOHN W MALLEY

CUSHMAN, DARBY & CUSHMAN
ATTORNEYS AT LAW AND COUNSELORS IN PATENT CAUSES
AMERICAN SECURITY BUILDING
WASHINGTON, D. C.

PATENTS
TRADE MARKS & COPYR

CABLE
"CUSHMAN" WASH

TELEPHONES
NATIONAL 3480-348

January
Twenty-three
1934

U.S PATENT OFFICE
JAN 31 1934
DIVISION 14

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In the matter of Patent to Albin H. Warth, No. 1,788,260, dated January 6, 1931, please prepare full size photostatic copy of the drawings and place in the file.

It is respectfully requested that the original drawings be placed in the file of the reissue application filed herewith.

Charge the cost to our account.

Respectfully,
Cushman Darby & Cushman

AVC/G

This letter & request for photostat - 1 page
Rec'd Dec 14

Print sent
My application
charge to
account

ONLY

1171

1415

184

Serial No. 707,995

Div.14
IMOV DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE COMMERCE

February ten, 1934.

Albin H. Warth, assor.,

Sir:

Your application for Reissue for Patent No. 1,788,260

for improvement in Method of Producing Closures

has been examined and allowed. (4 claims allowed)

The patent will be forwarded to you as soon as practicable, in due order of business.

Very respectfully,

Commissioner of Patents.

PATENT
MAR 20 1924
WILL ISSUE

Cushman, Darby, & Cushman,
American Security Bldg.,
Washington, D. C.

1172
1416

March 20, 1934. A. H. WARTH Re. 19,117

PROCESS OF PRODUCING CLOSURES

Original Filed Jan. 7, 1927

Fig. 1.

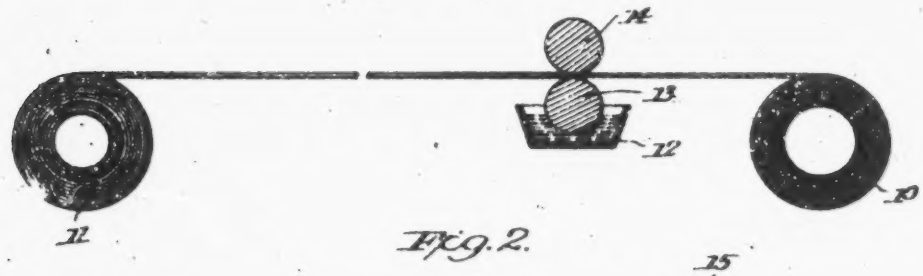


Fig. 2.

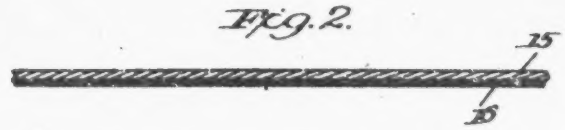


Fig. 3.

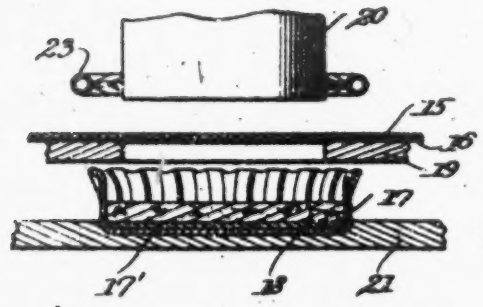


Fig. 4.

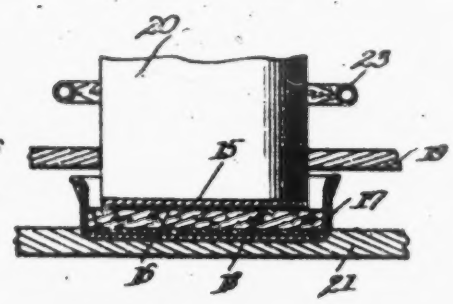


Fig. 5.

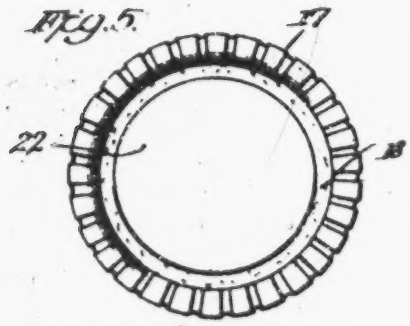
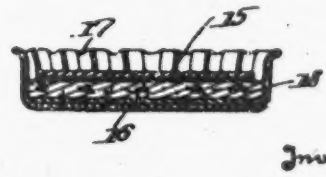


Fig. 6.



Inventor

Albin H. Worth.

By Cushman Darby & Cushman

Attorneys

Reissued Mar. 20, 1934

Re. 19,117

UNITED STATES PATENT OFFICE

19,117

PROCESS OF PRODUCING CLOSURES

Albin H. Warth, Baltimore, Md., assignor, by mesne assignments, to Crown Cork & Seal Company, Inc., New York, N. Y., a corporation of New York

Original No. 1,788,266, dated January 6, 1931, Serial No. 159,743, January 7, 1927. Application for reissue January 23, 1934. Serial No. 707,995

4 Claims. (Cl. 113—80)

This invention relates to a method of producing closures of the type in which a sealing disc has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disc usually made of cork. For some uses, the sealing discs are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork discs and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disc and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork discs by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shelf itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantiallly non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desireble, in the use of facing discs of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disc, and particularly that it be uninterrupted about the edge of this disc, since at this point the disc should be firmly bonded so as to effectively seal the joint about the edge of the facing disc. When cutting and applying the discs of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disc cut from the strip and the material of the cap to which such disc is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a

mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disc applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing discs and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of dammar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The dammar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disc which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300° F. maintained for about 3 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesives from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing discs. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disc, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawing, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively

uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawing,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Mierse, No. 1,893,786, granted Oct. 10, 1933. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disc it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion ma-

GGG/37

1176

1420

terial, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

4. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

ALBIN H. WARTH.

113
80

1934

CONTENTS

Application papers:

1. Print (robot) June 29, 1934 New
2. Data Report June 29, 1934
3. _____
4. _____
5. _____
6. _____

CC4/39

BLANK

PAGE

1177

C. E. McMANUS.

BOTTLE CAP MAKING MACHINE.

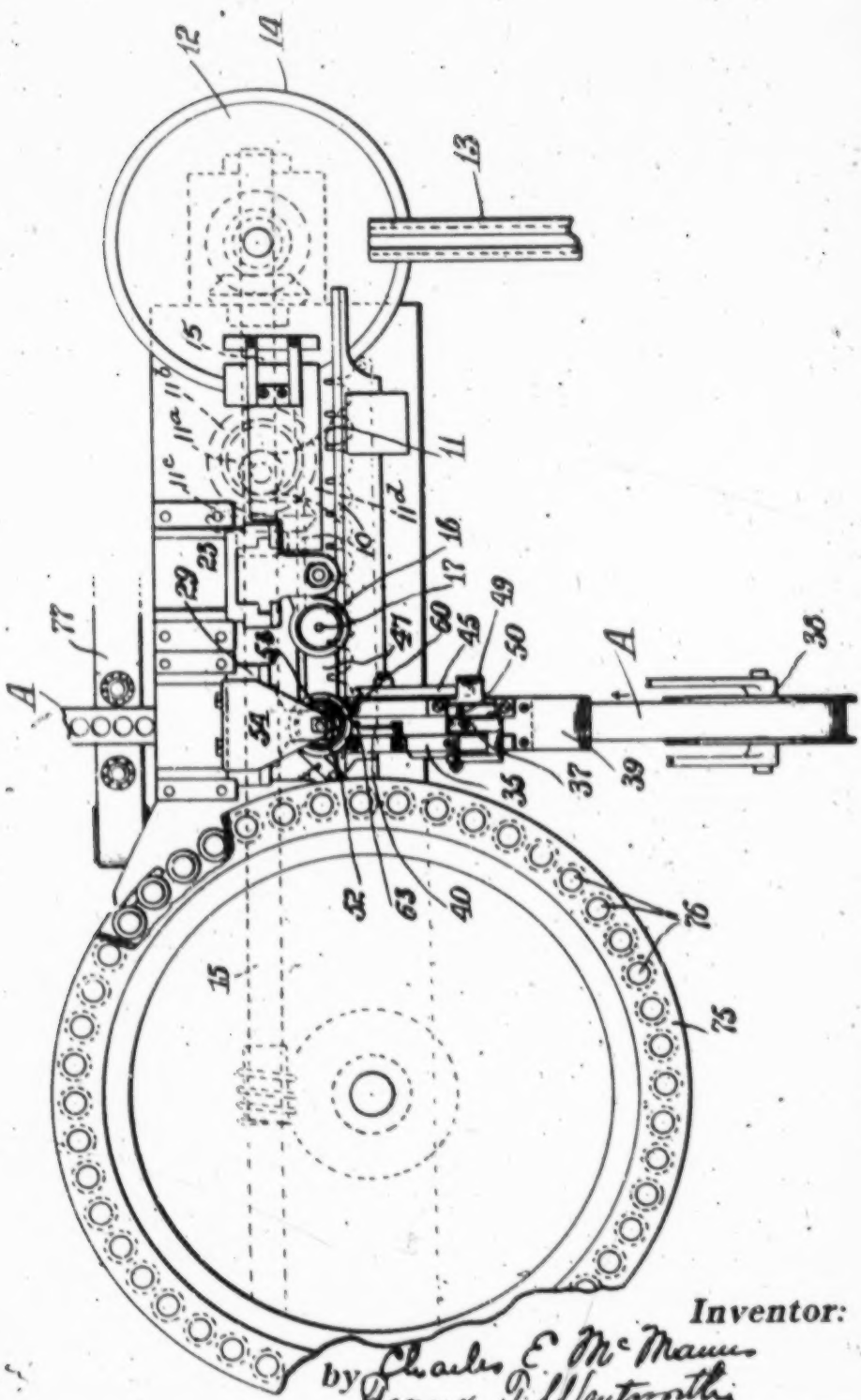
APPLICATION FILED APR. 15, 1916.

1,402,780.

Patented Jan. 10, 1922.

4 SHEETS—SHEET 1.

Fig. 1.



Attest:

E. McManus

Inventor:

by Charles E. McManus

Brand P. Wentworth

his Atty.

BLANK

PAGE

1178

C. E. McMANUS.

BOTTLE CAP MAKING MACHINE.

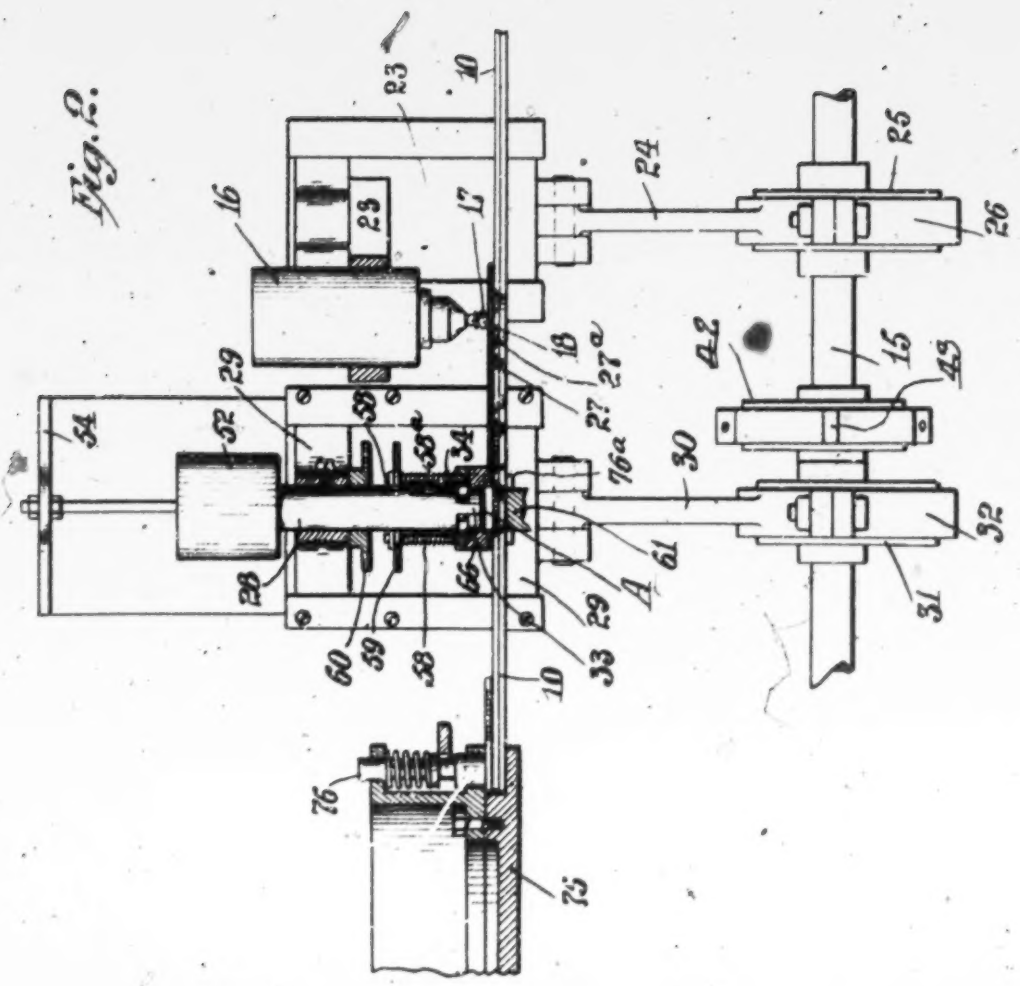
APPLICATION FILED APR. 15, 1916.

1,402,780.

Patented Jan. 10, 1922.

4 SHEETS—SHEET 2.

Fig. 2.



Attest:

E. C. Mitchell

Charles E. McManus Inventor:

by Frank P. Wentworth

Asst Atty.

BLANK

PAGE

1179

C. E. McMANUS.

BOTTLE CAP MAKING MACHINE.

APPLICATION FILED APR. 15, 1916.

1,402,780.

Patented Jan. 10, 1922.

4 SHEETS—SHEET 3.

Fig. 3.

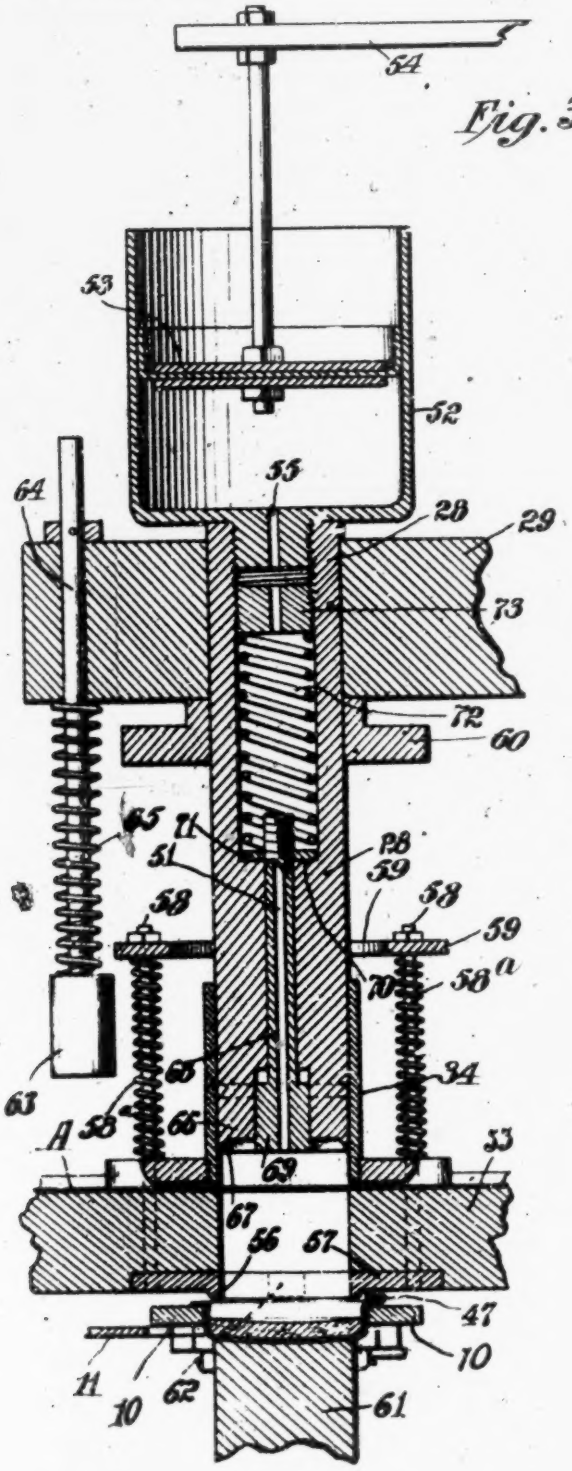
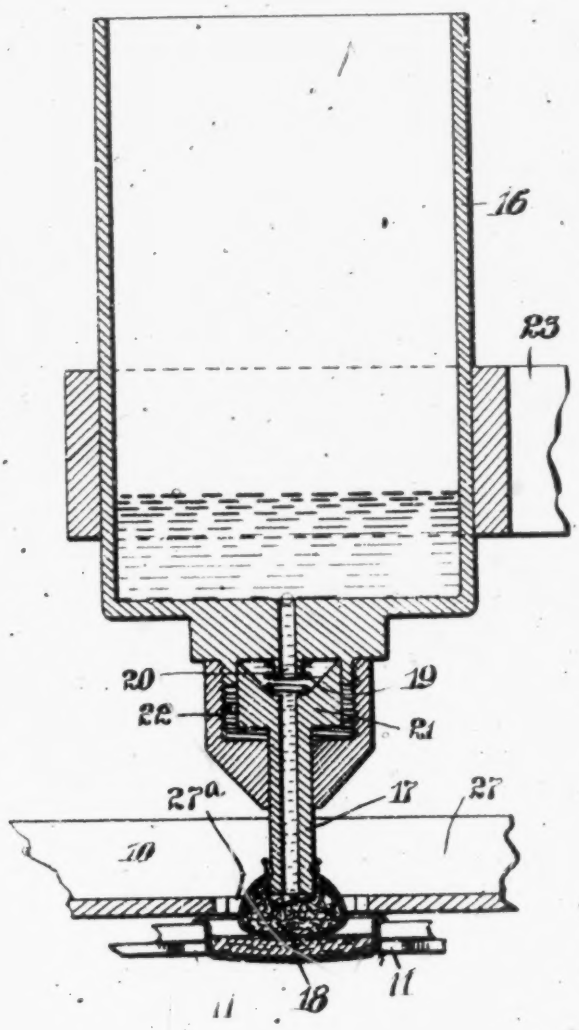


Fig. 4.



Attest:

Inventor:

by Frank P. Wentworth

his Atty.

BLANK

PAGE

1180

C. E. McMANUS.

BOTTLE CAP MAKING MACHINE.

APPLICATION FILED APR. 15, 1916.

1,402,780.

Patented Jan. 10, 1922.

4 SHEETS—SHEET 4.

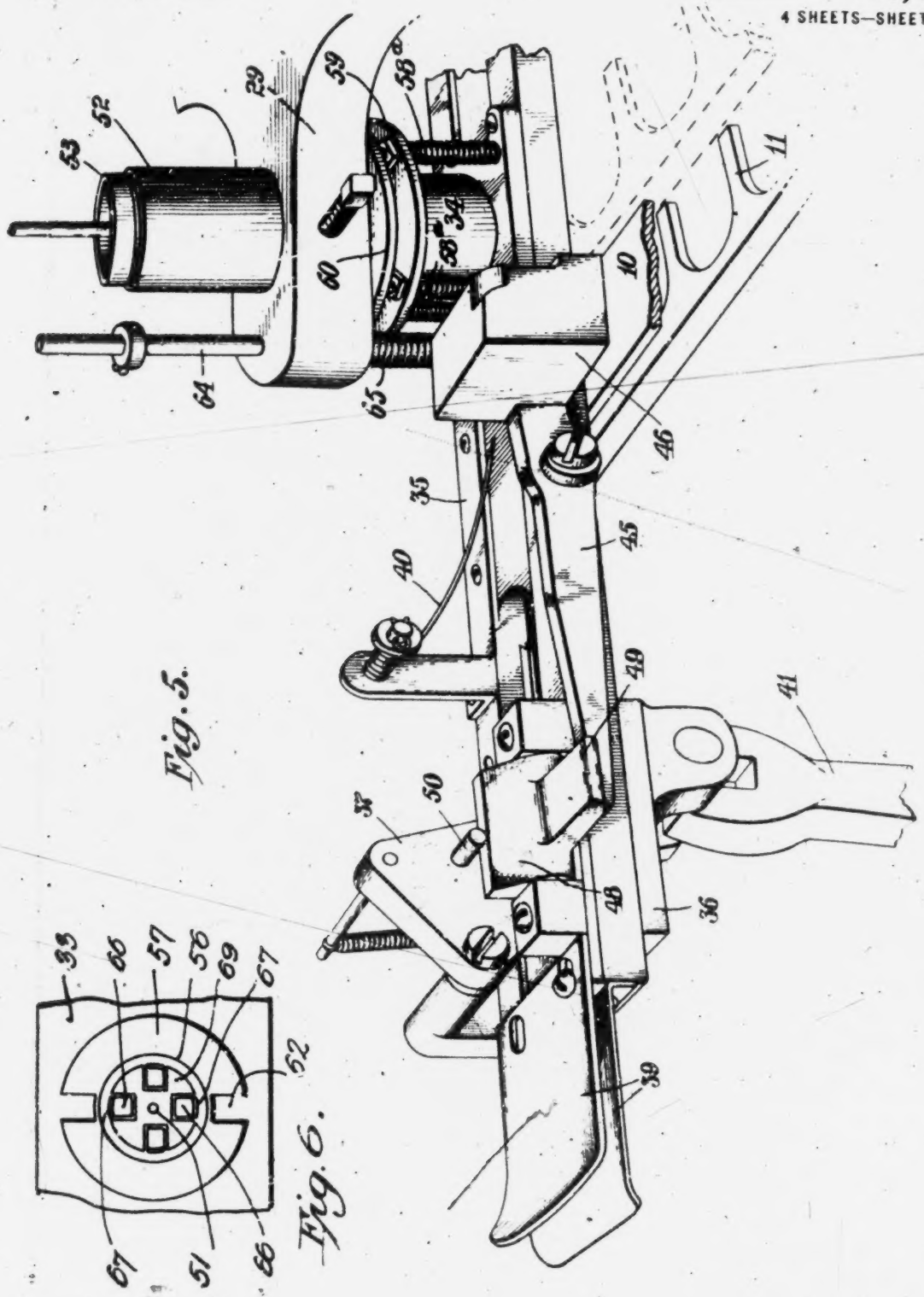


Fig. 5.

Fig. 6.

Attest:

E. Mitchell

Charles E. McManus Inventor:

by Frank P. Wentworth

his Atty.

UNITED STATES PATENT OFFICE.

CHARLES E. McMANUS, OF NEW YORK, N. Y.

BOTTLE-CAP-MAKING MACHINE.

1,402,780. Specification of Letters Patent. Patented Jan. 10, 1922.

Application filed April 15, 1916. Serial No. 91,278.

To all whom it may concern:

Be it known that I, CHARLES E. McMANUS, a citizen of the United States, residing at the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Bottle-Cap-Making Machines, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to bottle cap making machines and more particularly to a machine adapted to apply a protecting disk to the resilient disk for a cap.

It is desirable in producing bottle caps for most uses, to provide the resilient disk formed of cork or other material, with a non-absorbent, gas impervious protecting facing disk so that when a cap is applied to a bottle, this facing extending across the neck of the bottle, will protect the resilient disk from the action of the liquid and gases within the bottle and at the same time prevent the contamination of the contents of the bottle by contact with the material of said resilient disk, or the formation of gas vents through the disintegration thereof. This protecting facing also prevents particles of the material of the resilient disk falling within the bottle.

My invention contemplates a machine for applying protecting facing disks to the resilient disks used in bottle caps, the machine being so constructed as to adapt it to the rapid and automatic application of the facing disks to the resilient disks, in a manner to secure a sufficiently tight bond between the two to ensure that permanency in the relation of parts necessary to a satisfactory sealing of a bottle by the application of the cap thereto.

In a machine made in accordance with my invention, it is necessary to combine in the structure, means whereby a damping fluid may be applied to that area of the surface of the resilient disk to which the facing disk is to be applied; means for pressing the said facing disk into the necessary intimate engagement with the resilient disk to secure the required bond between the facing disk and said resilient disk, the feeding means by which the facing disk is brought into the proper relation to the pressing mechanism, and the resilient disk, and feeding means by which the succeeding resilient disks are brought rapidly into that position in which the facing disks are applied thereto.

I have found it desirable to limit the application of the damping fluid to an area of the resilient disk, substantially coinciding with the area of the facing disk to prevent discoloration of the resilient disk by the said damping material particularly when the protecting facing disk is of a diameter less than that of the resilient disk. Preferably in caps of this character a facing disk of less diameter than the cork or other disk, is used, since it is desirable to have the neck of the bottle sealed directly against the cork disk or other cushion, to avoid possibility of the formation of gas ducts as a result of a buckling or wrinkling of the material of the protective facing disk. In order to satisfactorily apply this small facing disk to the resilient disk of a bottle cap, I have found it necessary to so construct the machine as to secure substantial exactitude in the centering of the protecting disk with relation to the cork or other resilient disk, and to provide means whereby the facing disk will be applied in a manner to avoid its shifting upon the withdrawal of the presser rod, or subsequently thereto, before the adhesive has had an opportunity to properly set. To secure the desired rapid feeding of the protecting disks, I prefer to cut these disks from a continuous strip or web of previously gummed material, each disk being cut from this strip immediately preceding its application to the resilient disk. The presser mechanism is so constructed as to successively cut a disk from said strip or web, and apply the disk so cut to the resilent disk of a bottle cap by a continuous movement of the presser rod while affording a sufficient dwell, subsequent to the initial application of the disk to the resilient disk, to ensure a sufficiently tight adhesion of the facing disk to the resilient disk to permit withdrawal of the presser rod and the subsequent feeding movement of the resilient disk.

A machine made in accordance with my invention as shown in the drawings also provides means in conjunction with the presser mechanism for centering a bottle cap with relation to the presser bar prior to the application of the facing disk, so as to ensure substantial accuracy in the

centering of the facing disk upon the resilient disk of the cap. I also provide in the machine shown means for holding the severed disk firmly against the presser rod until it has been applied to the resilient disk for the purpose of ensuring a substantially parallel relation between the cut disk, the operative face of the presser bar and the face of the resilient disk to which the disk is to be applied. I also provide in the machine shown, means whereby the feeding mechanism for the paper strip or web will be automatically made inoperative in the event that a resilient disk is not fed in a timely manner with relation to the presser mechanism.

I also provide in the machine, means whereby after the resilient disk with the protecting facing applied thereto, leaves the presser rod, it will be maintained under pressure for a sufficient interval to ensure the requisite setting of the binding agent while the facing disk is held firmly upon the resilient disk.

The invention consists in the novel features of construction and combination of parts hereinafter set forth and described and more particularly pointed out in the claims hereto appended.

Referring to the drawings:—

Fig. 1 is a plan view of a machine embodying my invention;

Fig. 2 is a longitudinal section through the machine;

Fig. 3 is a vertical section through the presser and disk cutting mechanisms;

Fig. 4 is a vertical section through the damping mechanism;

Fig. 5 is a perspective view of the strip feeding, presser and disk cutting mechanisms, and Fig. 6 is a detailed view of the presser bar mechanism, and appurtenant parts.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, I have illustrated my invention in connection with a machine wherein the resilient disk is assembled with the metal cap prior to the application of the protecting facing disk thereto, although the essential features of my invention may be utilized with equal facility to the application of said protecting facing to the resilient disk prior to its assembly with the metal cap. In the following description, I will refer more particularly to the specific embodiment of my invention shown in the drawing, it being understood, however, that this particular mechanism may be modified in those respects necessary to ensure the feeding of a cork or other resilient disk alone, without departing from the spirit and scope of the invention.

In the form of the invention illustrated in the drawings, I have shown at 10 a channeled track or run-way along which the previously assembled caps are intermittently fed in any desired manner, as by means of an ordinary tongue bar 11 receiving a four way movement from any desired source of power. The means for imparting this four way movement to the tongue bar 11 comprises the disc 11^a driven from the shaft 15 by means of the intermeshing gears 11^b and 11^c, and an arm 11^d carried by said bar 11, and pivotally mounted eccentrically of the disc 11^a, all as indicated in dotted lines in Fig. 1 of the drawings. This construction is old and well known in this art and any other desired means of imparting the desired movement to the tongue bar 11 may be used. A suitable mechanism delivers the caps to which the facing is to be applied, to the track or runway 10, this delivery mechanism in the accompanying drawings consisting of a rotating disk 12 upon which the caps are successively delivered from a runway 13 leading from a storage hopper not shown. The rotary movement of the disk 12 will hold the caps against its peripheral rim 14 and cause a circular movement of the caps so as to ensure the timely feeding thereof to the track or runway 10 and within the operative field of the tongue bar 11. Extending longitudinally of the machine, is a power shaft 15 by means of which movement is imparted to the various mechanisms in the machine, thus synchronizing the movement of such mechanisms.

Arranged in operative relation to the said track or runway 10 and the feeding mechanism 11, are a damping mechanism adapted to apply a damping medium adapted to react upon the gum upon the protecting facing disk, and a presser mechanism adapted to force such a disk to place and hold it until the binding material has been sufficiently set to permit the further treatment of the article. These mechanisms are arranged successively and their operations are so timed as to be effective during that interval when the feeding mechanism 11 is inoperative in relation to the caps, or when the cork or other disks are treated before their application to the metal caps, to the disks alone. In the form of the invention shown, I associate with the presser mechanism a strip or web feeding mechanism and a cutting mechanism, the presser bar of said presser mechanism serving as a punch in cutting disks from said web.

The damping mechanism above referred to in the form of the invention shown comprises a tank 16 having a delivery nozzle 17, the discharge end of which is provided with a distributing pad 18 having the two-fold function of retarding the flow of the damping medium and applying the same over a restricted area in a film sufficiently thin to avoid excess moisture upon the cork or other

resilient disk. This pad offers sufficient resistance to the flow of the damping medium and is of sufficient bulk, to ensure the distribution of the damping medium mainly by capillary attraction. To ensure reliability in the feeding of the damping medium as well as to define the maximum pressure of the pad 18 upon the cork, or other disk, the nozzle 17 is made movable in relation to the tank 16, and is subjected to a thrust toward the track or runway 10 from a coiled spring 19 seated about a reduced discharge nozzle 20 upon the tank 16 and acting against a cup-like head 21 carried by the nozzle 17. This head 21 is slidably mounted within an annular ring 22 carried by the tank 16, thus forming a substantially water-tight joint about the top of the said head. By this construction the ordinary feeding of the damping fluid or medium will be through capillary attraction but upon the reciprocation of the nozzle 17 subsequent to its contact with the cork or other disk, there will be a forced feed due to the conditions between the cup 21 and the bottom of the tank 16. This forced feed will have the effect of causing a slightly greater quantity of the damping fluid to be delivered to the disk directly below the outlet of the nozzle 17 than about the edge thereof and will also have the effect of ensuring the constant presence of sufficient damping medium in the pad 18 to permit the operation of the machine at the desired speed.

In the form of the invention shown in the drawings, the tank 16 and all of its appurtenances are mounted upon a reciprocatory slide 23 mounted in suitable ways upon the frame of the machine and actuated by means of the connecting rod 24, the eccentric 25 and the strap 26. To avoid possibility of the displacement of the cork or other disk or of the metal cap carrying the same upon the withdrawal of the pad 18, I provide in the form of the invention shown, a guard plate 27 having an opening 27ª therethrough, above the track or runway 10 through which opening the pad 18 passes.

Beyond the tank 16 and alined longitudinally of the track or runway 10 with the pad 18 is a reciprocatory presser rod 28 adapted to force the facing disk into engagement with that portion of the resilient disk of a bottle cap which has been previously moistened by means of said damping pad. The said rod 28 is spaced from the damping pad 18 sufficiently to permit the conditioning of the dampened portion of the surface of the resilient disk so as to receive the said facing disk. The rod 28 is carried by and reciprocates with, a slide 29 mounted in suitable ways in the frame of the machine, and actuated by a connecting rod 30, eccentric 31 and strap 32.

In the form of the invention shown, the facing disks are cut from a gummed strip or web A just prior to the application of said disk to the cork or other resilient disk, of the cap. To permit this operation, I mount above the track or runway 10, a female part 33 of a cutting die, a tubular guide 34 being mounted upon said die part and spaced away therefrom, as shown, sufficiently to form a slot through which the gummed strip or web passes. The presser rod or bar 28 is slidably mounted in said guide 34, the bore of said guide being alined with the die opening in a manner to secure the desired shearing effect upon the strip or web with the depression of said presser bar. The lower end of the bar 28 is faced off so as to secure the desired sharpness of edge.

Extending laterally of the machine adjacent the parts 33 and 34 and alined with the top of the die part 33 is a track 35 in which is slidably mounted a carriage 36 carrying a spring pressed gripper member 37 by means of which the strip or web may be intermittently fed in relation to the disk applying mechanism, the strip A being supported upon a suitable reel 38. The track 35 is provided with suitably flared-plates 39 to guide the web in relation to the gripper mechanism. I also provide a check spring 40 for preventing a return movement of the strip or web with the said gripper mechanism. The reciprocatory gripper 37 is actuated by means of a lever 41 actuated from an eccentric 42 and strap 43 carried by the shaft 15.

To prevent the feeding of the strip or web, except when a cork or other resilient disk is in a position to have a facing disk applied thereto, I mount upon the track 35 a lever 45 one end of which is provided with a weight 46 having a finger 47 adapted to bear upon the edge of the cap, or of the resilient disk, as the case may be. Pivotally mounted upon the tracks 35 adjacent the carriage 36 is an elongated block 48 having a weighted extension 49 adapted to be engaged by the end of said lever 45. The said block 48 co-operates with a bearing pin 50 upon the gripper member 37, so that when the weight 46 is raised by the engagement of the finger 47 thereon with a cap or resilient disk, the block 48 will drop away from the pin so as to permit the gripper 37 to operatively engage the strip or web; but in the event that the weight 46 is permitted to drop, said block 48 will be projected within the path of said pin 50 and thus prevent the operative engagement of said gripper member and the feeding of the web when no resilient disk is in position with relation to the presser mechanism. The specific strip or web feeding mechanism above described is not material to my invention, and other means for intermittently feeding the strip or web and preventing feeding movement thereof when no resilient disk is in position to have the facing disk applied

thereto, may be substituted therefor without departing from the spirit and scope of the invention.

The presser bar or rod 28 has extending longitudinally therethrough, a small duct 51 by means of which a suction may be applied to the paper web while the disk is being cut therefrom and to the disk after it has been so cut, so as to prevent such a displacement of the disk as will prevent its being applied perfectly flat to the cork or other resilient disk. Surmounting the rod or bar 28 is a cup 52 operating within which is a pump plunger 53 which is supported in a fixed relation in the frame of the machine by a bracket 54. The cup 52 being mounted upon and movable with the rod or bar 28 and connected with the interior thereof through the short duct 55, it will be observed that with the downward movement of said bar there will be a substantial reduction of the pressure in the cup 52 and duct 51 and that with the reversal of this movement, there will be a corresponding increase of pressure thus tending to avoid displacement of the disk upon the return movement of the rod or bar 28. In the form of the invention shown, the plunger 53 is so set with relation to the cup 52 that at the end of the stroke of the rod or bar 28, said plunger will pass from said cup and thus admit air thereto. The cup 52 may be so proportioned, if desired, as to admit air thereto substantially simultaneously with the application of the facing disk to the cork, or other resilient disk, so as to increase the effective pressure upon the return stroke thereof.

After the tongue bar 11 has fed a disk below the die part 33, it is essential to secure substantial accuracy in the centering of the cap, or the cork or other disk, with relation to the opening in said die member in order to have the disk applied to the area of said cork, or other disk, which has been previously dampened by the pad 18. In the form of the invention shown, this means for centering the cork, or other disk, is so constructed as to be applicable to a machine for applying the facing disk after the cork or other disk has been assembled in the metal cap. It comprises an annular wedge 56 carried by a ring 57 mounted in the lower face of the die part 33. Carried by said rim 57 are a plurality of rods 58, a head ring 59 being provided for all of said rods 58. Mounted upon the rod or bar 28 is a collar 60 adapted to engage the end of the several rods 58 and impart a reciprocatory movement to the wedge 56 just prior to the application of the facing disk to the cork or other disk. By this construction, clearance beneath the ring 56 for the feeding of successive caps is provided and the ring [illegible] rod or bar 28 and the facing disk [illegible] thereby will have simultaneous movement [illegible] so as to avoid likelihood of the displacement of said disk just prior to its application to the cork or other resilient disk. The springs 58ª will have the function of withdrawing the wedge 56 prior to the succeeding feeding movement of the cap.

When applying the facing disk, it is also necessary to prevent oscillatory movement of the cap upon the anvil 61 positioned below the opening of the die part 33, the surface of the cap engaging said anvil being convex, and it being impossible to provide upon said anvil, supports extending longitudinally of the track or runway 10 for the edges of said cap. To impart the desired stability to the cap, I provide the lower face of the die part 33 outside of the ring 56 with fixed abutments 62 which will engage the top of the out-turned rim of the cap and prevent any oscillatory movement in a direction longitudinally of the track or runway 10. The anvil 61 may be supported from the track 10, or from any other adjacent portion of the machine frame.

To avoid movement of the strip or web A resulting from a drag thereupon while the disk is being cut therefrom, I mount a clamp member 63 upon a rod 64 slidably mounted in the slide 29, a spring 65 being seated between said clamp member and said slide in a manner to give the desired cushioning effect when the clamp member is pressed against the track 45 while developing sufficient pressure to secure the desired operative effect upon the strip or web.

The rod 64 may be adjusted with relation to the slide 29 and the plunger 53 may be adjusted with relation to its supporting bracket 54 to facilitate accuracy in the assembling of the machine or in the adjustment thereof to secure the desired operative conditions.

I have found it preferable to use a facing disk, the diameter of which is substantially less than that of the cork or other resilient disk; since I have found that a better sealing of the neck of the bottle is secured when the top of the bottle seats directly upon the cork or other resilient disk. By better sealing I refer not to greater permanency in any particular case, but to greater uniformity in the effectiveness of the seals in a large number of cases, for, to use the trade expression, the percentage of "leakers" has been materially reduced where this type of facing has been used. With the smaller facing disk, however, I have encountered difficulties in the mechanism for applying these disks, due to the necessity for having the disk positioned with sufficient accuracy in relation to the setting of the cork or other disk to avoid possibility of a portion of the facing disk engaging the top of the bottle in a manner to form a leak about the edge of the disk, I have found in applying these smaller disks that there is a tendency for the facing disk

to shift slightly upon the cork, or other, disk before the binding material has been properly set and this difficulty has necessitated the incorporation in a machine made in accordance with my invention and adapted especially to apply these smaller disks, of means for preventing such movement of the facing disk.

In the form of the invention shown, I prevent this shifting by forcing small portions of the facing disk, at the edge thereof, into the body of the cork, or other disk, sufficiently to prevent movement of the disk in relation to the cork, without, however, cutting or mutilating the cork or other disk in any way. I also provide means whereby while the facing disk is held in position, by being forced into the body of the cork slightly, it will be subjected to a continuing pressure sufficient to permit the binding medium to set enough to permit the withdrawal of the presser rod or bar and the subsequent application to the facing disk of further pressure for insuring permanency in the bond between the two disks.

To accomplish the results above referred to, I provide the lower end of the rod or bar 28 with a plurality of divergently arranged arms 66 each having at the outer lower edge thereof an edged prong 67 coinciding with the outer surface of the said plunger. The bar 28 is hollow from end to end and slidably mounted therein is a stem 68 through which the duct or opening 51 passes. The lower end of this stem carries a platen head 69 the edge of which is provided with a plurality of slots to accommodate the arms 66. The rod or bar 28 is provided with a stop shoulder 70 co-operating with a flanged head 71 upon the inner end of the stem 68 in a manner to limit the outward movement of the platen head 69 under the control of the spring 72 seated within the upper portion of the rod or bar 28 and acting against a plug 73 within said rod or bar. To permit the setting of the platen head with relation to the arm 66, the flanged head 71 is adjustably mounted upon the stem 68 and the plug 73 is adjustably mounted in the rod or arm 28 so that the pressure exerted upon the said platen upon the facing disk may be regulated. The plug 73 has an opening longitudinally therethrough of substantially the same diameter as the duct 51 so as to permit the application of the required suction to the center of the platen head 69. When the device is assembled, the head 69 will be spaced away from the portion of the rod or bar 28 between the arms 66 sufficiently to permit the required movement of the said head.

From the foregoing it will be observed that in a machine made in accordance with my invention as shown in the accompanying drawings, the reciprocatory presser bar embodies therein a yieldable platen adapted to exert a continuing pressure upon the facing disk, and prongs fixed in relation to the presser bar adapted to engage the edge of the facing disk while pressure is being applied thereto, said prongs upon the reversal of the movement of the pressure rod or bar being disengaged from the said facing disk while the platen is still in engagement therewith.

I have found the above characteristics to be important where a facing disk of a diameter less than that of the cork or other resilient disk, is used and where it is necessary to apply the facing disk to the cork or other disk while the gum thereon is drying; since a certain dwell is essential in order to permit the damping medium to act upon this gum in a manner to make the gum adhesive and permit it to set sufficiently to hold the facing disk with the necessary permanency to permit subsequent treatment of the faced disk.

Receiving the caps from the track or runway 10 is a rotary table 75 having adjacent the edge thereof a sequence of spring clamps 76 adapted to be controlled by a cam 76ª so that as each cap containing the facing disk is delivered to said table, it will be received by one of said clamps and be subjected to a continuing pressure therefrom during the greater portion of one rotation of said table. This table is substantially like that used in the ordinary assembling machine for bottle caps and a detailed description thereof is therefore unnecessary. The sole function of the spring clamps upon said table, in connection with the machine made in accordance with my invention, is to insure a sufficient dwell after the application of the facing disk to the cork or other disk, to permit the setting of the adhesive or binding medium prior to the delivery of the finished article. This binding medium will set readily at normal temperatures, although if desired heat at a low temperature may be applied to the table to expedite the evaporation of the damping medium. I have, however, found it desirable to have said binding medium set under pressure in order to secure the desired intimacy of the bond and to cause the facing strip to be perfectly flat.

In connection with the table 75 I provide an ordinary collecting belt 77 for the purpose of facilitating the inspection of the finished article.

The waste of the strip or web A is merely allowed to run from the machine and may be collected in any desired receptacle.

The strip A may be made of any desired material, one side thereof being water proof, gas impervious and acid resisting, while the other side thereof is provided with a gummed surface. The strip must be thin to avoid its projecting from the cork or other resili-

ent disk and interfering with the sealing of the bottle, and sufficiently pliable or flexible to permit it to yield readily with the cork or other disk. If the material of the disk does not possess inherent properties to make it non-absorbent, gas-impervious and acid resisting, it may be treated in any desired manner to impart to its these properties. It will be readily observed that the strip or web A must be dry when the disks are cut therefrom, since the application of a wet adhesive to the surface thereof prior to the cutting of the disks therefrom would not only interfere with the shearing action but would foul the cutting mechanism so rapidly as to make the machine impracticable.

The operation of the herein described machine is substantially as follows.

A machine made in accordance with my invention is designed merely to place a protecting facing disk upon a cork or other resilient disk, entering into the structure of a closure cap for bottles and is not adapted to assemble the cork or other disk with the metal part of the cap, whether the facing disk be applied to the cork or other disk before or after it has been assembled in the completed article. The machine of my invention might be associated with an assembling machine so as to produce a cap having a protecting facing but the variance in time required to assemble the cap, and to apply the protecting facing thereto is such as to ordinarily make it desirable to operate these two types of machine entirely independently of each other.

In the form of the invention shown the protecting facing disk is applied after the cork or other resilient disk has been assembled with the metal part of the cap, and the details of the machine are so constructed as to adapt the machine to the handling of the assembled caps.

The caps to be faced are successively delivered at the desired rapidity by the delivery mechanism to the intermittently operative feeding mechanism 11, by which they advance with a step by step movement toward the damping and the presser mechanism. During the dwell of the caps between their feeding movements, the tank 16 and the rod or bar 28 are simultaneously forced downwardly into the operative relation with certain of the caps, this movement applying the facing disk to one cap, and damping the cork or other resilient disk, of a succeeding cap so as to condition it to receive the facing disk upon a subsequent operation of the machine. Since the several operations of the dampening of the cork or other resilient disk, the strip from which the facing disks are cut, and cutting and applying the disk are substantially simultaneous, I will, to avoid confusion in the description, describe each operation separately.

As to the damping mechanism, since the pad 18 retards the flow of the damping medium, it is necessary to secure the desired damping effect upon the cork or other disk by applying said pad 18 to the disk with sufficient pressure to force the damping medium in the desired volume through said pad. As the tank 16 and its appurtenances descend, the pad 18 will contact with the cork or other disk, and with a subsequent and continuing movement of the said tank, the spring 19 will yield under the pressure sufficiently to permit the head 21 to move toward the bottom of the tank and thus tend to force the damping medium contained in said head and in the opening through the nozzle 17, into and through the pad 18 in a manner to deposit a thin film of the medium upon the surface of the cork or other disk. With the reversal of the movement of the said tank, however, the pad will remain in contact with the cork or other disk and as the tank recedes the head 21 will have the two-fold effect of instantly retarding the flow of the damping medium toward the pad, and of drawing a fresh supply of the said medium within the head 19 from the tank 16. The forced feed of the damping medium after the application of the pad 18 to the cork or other disk, will cause the greatest volume of the damping medium to be adjacent the center of the pad 18 and the dwell of this pad during the first part of the return movement of the tank, will have the effect of equalizing the quantity of the damping fluid throughout the entire area to which it is applied, and limiting this quantity to a thin film.

The damping medium used may vary as to its composition according to the composition of the gum used upon the strip or web A from which the facing disks are cut, or if composition disks are used instead of cut cork disks, with the character of the binder as well as the gum, so as to ensure any desired chemical reaction which will facilitate the quick adhesion of the facing disk to the cork or other disk and permanency of the bond between the two.

While a short track or runway 10 may be employed, I preferably space the damping mechanism sufficiently in advance of the presser mechanism to ensure the portion of the cork or other disk having the damping medium thereon being in a condition to receive the previously gummed facing disk as it approaches the presser mechanism.

As each cap is fed in relation to the damping mechanism, it passes under the guard plate 27 and is held thereby in a fixed relation to the pad 18.

After leaving the damping mechanism, the caps are successively fed in relation to the presser mechanism, being brought to rest below the opening in the die part 33, and

upon the anvil 61. As each cap approaches the die, the ring 56 is in its upward position so as to leave the proper clearance, and the upper rim of the metal part of the cap engages the projections 62 at diametrically opposite points thereof in the direction of the longitudinal movement of the cap, thus holding the cap firmly in place.

As each cap comes to place the carriage 36 is reciprocated, the gripper 37 thereon engaging the strip or web A which has the gummed surface thereof presented downwardly towards the said die part 33, and feeds said strip or web to an extent required to cut one disk therefrom. Upon the reversal of the movement of the carriage 36, the check spring 40 will prevent a return movement of the strip or web. In the event that at any time a cap is not fed beneath the said die part, the tongue 46 upon the weight 47 will meet no resistance, thus causing said weight to rock the lever 45 and force the block 48 into operative engagement with the pin 50 upon the gripper 37 in a manner to prevent said gripper feeding the strip or web.

During the first stages of the descent of the rod or bar the platen 69 and the arms 66 will act as a punch co-operating with the die part 33 to cut a disk from the strip or webs A. With the downward movement of said rod or bar the cup 52 will be moved in relation to the plunger 53 in a manner to develop a suction through the duct 51 upon the strip, thus holding the cut disk flat against the face of the said rod or bar; and this suction will continue during the entire downward stroke of the said rod or bar.

With a continued downward movement of the rod or bar 28, the collar 60 will engage the ends of the spring pressed rods 58 and force the ring 57 downwardly forcing the wedge 56 within the metal portion of the cap, which will center the cap with relation to the rod or bar 28 and will remain in this position until the facing disk has been applied to the cork or other disk, and prevent movement of the cap in relation to the rod or bar during this interval.

As the rod or bar 28 approaches the limit of its downward stroke, the platen 69 will force the facing disk, under a yielding pressure, upon the previously dampened portion of the cork or other disk, thus compensating for any variance in the thickness of the cork or other disk, limiting the pressure applied thereto, and permitting a dwell of the disk under pressure sufficient to ensure a temporary bond between the facing disk and the cork or other disk. As the platen 69 recedes against the tension of its spring 72, the prongs 67 will force divergent portions of the edge of the facing disk into the material of the cork, or other, disk in a manner to secure a firm bond at those points and thus not only ensure accuracy in the centering of the facing disk, but sufficient permanency in the bond to avoid slippage of the facing disk in relation to the cork or other disk. With the reversal of the movement of the rod or bar 28, the prongs 67 will be disengaged or withdrawn from the material of the cork, or other, disk while the platen 69 continues to apply pressure to the facing disk in a manner to prevent any possible displacement thereof. With this upward movement, the pressure in the cup 52 will be raised above atmosphere in a manner to serve somewhat as an injector for ensuring a clean separation of the platen 69 from the facing disk. It is apparent that by adjustment of the plug 73 the pressure exerted by the platen 69 may be regulated. The shoulder 70 and the plunger head 71 upon the stem 68 limit the outward position of the platen 69 and by adjusting said plunger head 71, the relative position of the platen 69 and the arms 66 may be regulated.

As the rod or bar 28 moves upwardly, the ring 60 will be disengaged from the spring pressed rods 58 permitting the ring 57 to recede within the lower face of the die part 33 and afford clearance for the subsequent feeding movement of the caps.

As the slide 29 descends, the clamp 63 will yieldingly engage the strip or web A in a manner to check any tendency of the strip to drag while the facing disk is being cut therefrom.

After leaving the presser mechanism, the cap is delivered to one of the spring clamps 76 carried by the table 75, which clamp will close upon the cap in a manner to apply a continuing pressure thereupon until the table 75 has turned to a point where the cap will be discharged upon the collecting belt 77. The table 75 need not be subjected to heat to secure the desired bond between the facing disk and the cork or other disk, it being merely required that the facing disk be subjected to a continuing pressure after its application to the cork or other disk, to secure the desired permanency of the bond between the two disks. If desired heat at a low temperature may be applied to the said table, solely for the purpose of drying out the damping medium, however.

The operations above described are either simultaneous or in such rapid sequence, as to be practically simultaneous, as the machine is operated at a fairly high speed. The feeding movement is alternated with the operations incidental to the application of the facing disk to the cork or other disk.

It is not my intention to limit the invention to the details of construction shown in the drawings or to the particular mechanical movements by which the dampening and presser mechanism are actuated. The machine shown in the drawings is adapted to

handle previously assembled caps, but it is apparent that to adapt the machine to handling the cork or other disks, before assembling them with the metal portion of the cap, would require merely the modification of the feeding and holding mechanisms for the disks and would not involve any substantial variance in the functions of the machine.

Having described the invention, what I claim as new and desire to have protected by Letters Patent is:—

1. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a portion of the area of a resilient disk for a bottle cap, and means for applying previously gummed facing material to the portion of the disk to which said damping medium is applied.

2. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a portion of the area of a resilient disk for a bottle cap, means for cutting a disk of facing material from a previously gummed strip, and applying said disk to the dampened portion of said other disk, and feeding means for said strip.

3. A machine for making bottle caps embodying therein means for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for cutting a facing disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip and for applying said facing disk to said resilient disk, and feeding means for said strip.

4. A machine for making bottle caps embodying therein means for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for cutting a facing disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip, said means embodying therein a platen adapted to press said facing disk into engagement with the resilient disk and means adapted to press portions of the edge of said facing disk into the body of said resilient disk whereby displacement of said facing disk upon the withdrawal of said platen therefrom is prevented and feeding means for said strip.

5. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for applying previously gummed facing material to the portion of the disk to which said damping medium is applied, and means subjecting said facing disk to a continuing pressure after it has been applied to said resilient disk.

6. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for cutting a disk of facing material from a previously gummed strip, and applying said disk to the dampened portion of said resilient disk, feeding means for said strip or web and means subjecting said facing disk to a continuing pressure after it has been applied to said resilient disk.

7. A machine for making bottle caps embodying therein means for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for cutting a facing disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip and for applying said facing disk to said resilient disk, feeding means for said strip, and means subjecting said facing disk to a continuing pressure after it has been applied to said resilient disk.

8. A machine for making bottle caps embodying therein means for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for cutting a facing disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip, said means embodying therein a platen adapted to press said facing disk into engagement with the resilient disk and means adapted to press portions of the edge of said facing disk into the body of said resilient disk whereby displacement of said facing disk upon the withdrawal of said platen therefrom is prevented, feeding means for said strip, and means subjecting said facing disk to a continuing pressure after it has been applied to said resilient disk.

9. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for applying previously gummed facing material to the portion of the disk to which said damping medium is applied and means whereby air under pressure is applied to said facing disk as said last named means recedes therefrom.

10. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for cutting a disk of facing material from a previously gummed strip and applying said disk to the dampened portion of said resilient disk, means whereby a continuing suction is applied to said facing disk after it is cut from said strip and until it is applied to the resilient disk, and feeding means for said strip.

11. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for cutting a disk of facing material from a previously gummed

strip, and applying said disk to the dampened portion of said resilient disk, an air pump co-operating with said last named means whereby the facing disk will be held by suction in a fixed relation to said means until it has been applied to said resilient disk and air under pressure will be applied to said facing disk as said last named means recedes, and feeding means for said strip.

12. A machine for making bottle caps embodying therein a reciprocatory damping mechanism adapted to apply a damping medium to the surface of the resilient disk for a bottle cap, a reciprocatory presser mechanism, means whereby previously gummed facing material is fed in relation to said presser mechanism, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

13. A machine for making bottle caps embodying therein a reciprocatory damping mechanism adapted to apply a damping medium to the surface of a resilient disk for a bottle cap, a reciprocatory presser mechanism, means whereby facing material is fed in relation to said presser mechanism, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms, and means whereby said facing material is subjected to a continuing pressure after leaving said presser mechanism.

14. A machine for making bottle caps embodying therein a reciprocatory damping mechanism, a reciprocatory presser mechanism, intermittently operative means simultaneously actuating said damping and said presser mechanisms whereby said damping mechanism will apply a damping medium to the surface of a resilient disk for a bottle cap and said presser mechanism will simultaneously apply previously gummed facing material to a previously dampened resilient disk, means whereby facing material is fed in relation to said presser mechanism and intermittently operative means whereby a sequence of resilient disks are successively brought into operative relation to said damping and said presser mechanisms.

15. A machine for making bottle caps embodying therein a reciprocatory damping mechanism, a reciprocatory presser mechanism, intermittently operative means simultaneously actuating said damping and said presser mechanisms, whereby said damping mechanism will apply a damping medium to the surface of a resilient disk for a bottle cap and said presser mechanism will simultaneously apply facing material to a previously dampened resilient disk, means whereby facing material is fed in relation to said presser mechanism, intermittently operative means whereby a sequence of resilient disks are successively brought into operative relation to said damping and said presser mechanisms and means whereby said resilient disks and the facing material thereon are subjected to a continuing pressure after they leave said presser mechanism.

16. A machine for making bottle caps embodying therein a reciprocatory damping mechanism embodying therein a yieldable nozzle adapted to apply a damping medium to the surface of a resilient disk for a bottle cap, means having a normal tendency to thrust said nozzle toward the resilient disk whereby said nozzle remains in engagement with said resilient disk for a sufficient period to ensure uniform application of the damping medium thereto, a reciprocatory presser mechanism, means whereby facing material is fed in relation to said presser mechanism, and means whereby said facing material is subjected to a continuing pressure after leaving said presser mechanism.

17. A machine for making bottle caps embodying therein a reciprocatory damping mechanism embodying therein a yieldable nozzle, an absorbent pad carried by said nozzle, a container for the damping medium, co-operating means carried by said container and said nozzle whereby the damping fluid will be forced into said pad upon the engagement of the pad with a resilient disk, and means having a normal tendency to thrust said nozzle toward said resilient disk whereby said pad remains in engagement with the resilient disk for a sufficient period to ensure uniform application of a damping medium thereto and the flow of the damping medium toward the end of the interval during which said pad is in engagement with said resilient disk will be checked, a reciprocatory presser mechanism, means whereby facing material is fed in relation to said presser mechanism, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

18. A machine for making bottle caps embodying therein a reciprocatory damping mechanism embodying therein a container for the damping medium having a sub-chamber into which said medium flows, from said container through a constricted opening, a nozzle having a cup-like head in said sub-chamber, an absorbent pad carried by the lower end of said nozzle and a spring having a normal tendency to thrust said nozzle away from said container whereby said pad remains in engagement with a resilient disk for a sufficient period to ensure uniform application of a damping medium thereto and the flow of the damping medium toward the end of the interval during which said pad is in engagement with said resilient disk will be checked, a reciprocatory presser mechanism, means whereby facing material

is fed in relation to said presser mechanism, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

19. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby said facing disk is delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

20. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto, embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, a platen and means whereby said prongs may be disengaged from said disks while said platen remains in engagement therewith, means whereby said facing disks are delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

21. A machine for making bottle caps embodying therein a reciprocatory damping mechanism adapted to apply a damping medium to the surface of a resilient disk for a bottle cap, a reciprocatory presser mechanism, means whereby previously gummed facing material is fed in relation to said presser mechanism, means whereby said presser mechanism is held in engagement with said facing material after its application to the resilient disk for an interval to ensure the moistening of the gum on, and the adhesion of, said material to said resilient disk, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

22. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto, embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, a platen slidably mounted therein adjacent said prongs a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs and a stop limiting the outward movement of said platen, whereby said platen will force said facing disk into engagement with said resilient disk and subject it to a continuing pressure while said prongs force edge portions of the facing disk into the resilient disk and are withdrawn therefrom, means whereby a facing disk is delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

23. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto, embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, a platen slidably mounted therein adjacent said prongs a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs, a stop limiting the outward movement of said platen, whereby said platen will force said facing disk into engagement with said resilient disk and subject it to a continuing pressure while said prongs force edge portions of the facing disk into the resilient disk and are withdrawn therefrom, and independently operative means whereby said platen may be set relatively to said prongs and the tension of said spring may be regulated, means whereby a facing disk is delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

24. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, a presser mechanism for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs

about the edge thereof adapted to force the edge of said facing disk into said resilient disk, a platen slidably mounted therein adjacent said prongs, a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs, a stop limiting the outward movement of said platen whereby said platen will force said facing disk into engagement with said resilient disk and subject it to a continuing pressure while said prongs force edge portions of the facing disk into the resilient disk and are withdrawn therefrom, and means for holding the facing disk against said platen and facilitating the withdrawal of said platen from said facing disk after its application to the resilient disk comprising a cylinder carried by and movable with said presser bar, and a fixed piston co-operating therewith, said presser bar and said platen being provided with a duct opening into said cylinder and outwardly of said platen, means whereby a facing disk is delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping mechanism and said presser mechanism.

25. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, a presser mechanism for applying a previously gummed facing disc thereto and means whereby said resilient disk is centered relatively to said presser mechanism.

26. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby a facing disk is delivered into operative relation to said presser bar, means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms and means whereby said resilient disk is centered relatively to said presser mechanism.

27. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto, embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby facing disk is delivered into the operative relation to said presser bar, means whereby said resilient disk is centered relatively to said presser mechanism comprising a reciprocatory wedge encircling said presser bar, springs normally raising said wedge and means carried by said presser bar whereby said wedge will be forced into engagement with the metal portion of a bottle cap having a resilient disk therein prior to the engagement of the facing disk with said resilient disk and means whereby bottle caps having resilient disks therein are brought successively into the operative relation to said presser mechanism and a centering wedge.

28. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby a facing disk is delivered into the operative relation to said presser bar, and means whereby said facing material is subjected to a continuing pressure after leaving said presser mechanism.

29. A machine for making bottle caps embodying therein a reciprocatory damping mechanism adapted to apply a damping medium to the surface of a resilient disk for a bottle cap, a reciprocatory presser mechanism, means whereby previously gummed facing material is fed in relation to said presser mechanism, means whereby said presser mechanism is held in engagement with said facing material after its application to the resilient disk for an interval to ensure the moistening of the gum on, and the adhesion of, said material to said resilient disk, and means whereby said facing material is subjected to a continuing pressure after leaving said presser mechanism.

30. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby a facing disk is delivered into the operative relation to said presser bar, means whereby said resilient disk is centered rel-

atively to said presser mechanism comprising a reciprocatory wedge encircling said presser bar, springs normally raising said wedge, means carried by said presser bar whereby said wedge will be forced into engagement with the metal portion of a bottle cap having a resilient disk therein prior to the engagement of the facing disk with said resilient disk, means whereby bottle caps having the resilient disks therein are brought successively into the operative relation to said presser mechanism and a centering wedge, a support for the bottle cap axially below said presser bar and means adjacent said wedge adapted to engage the rim of said cap whereby movement of said cap is prevented while said facing disk is being delivered thereto.

31. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, a reciprocatory presser bar having a plurality of prongs about the edge thereof, a platen slidably mounted in relation to said bar adjacent said prongs, a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs, a stop limiting the outward movement of said platen, a die part having an opening therein adapted to cooperate with the edge of said platen and said prongs in cutting a disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip whereby a facing disk will be forced by said platen into engagement with said resilient disk and be subjected to a continuing pressure while said prongs force edge portions of said facing disk into the resilient disk and are withdrawn therefrom, means feeding said strip relatively to said die part and said bar, and means whereby the resilient disk is brought successively into the operative relation to said damping mechanism below said die part.

32. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, a reciprocatory presser bar having a plurality of prongs about the edge thereof, a platen slidably mounted in relation to said bar adjacent said prongs, a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs, a stop limiting the outward movement of said platen, a die part having an opening therein adapted to cooperate with the edge of said platen and said prongs in cutting a disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip whereby a facing disk will be forced by said platen into engagement with said resilient disk and be subjected to a continuing pressure while said prongs force edge portions of said facing disk into the resilient disk and are withdrawn therefrom, means feeding said strip relatively to said die part and said bar, means whereby the resilient disk is brought successively into the operative relation to said damping mechanism below said die part, means whereby the feeding of said strip will be prevented in the event of the failure of said last named means to bring a resilient disk into the operative relation to said die part and said bar.

In witness whereof, I hereunto affix my signature in the presence of two subscribing witnesses, this 13th day of April, 1916.

CHARLES E. McMANUS.

Witnesses:
JUDITH CARDEE,
CLARICE FRANCK.

BLANK

PAGE

1193

L. BARTLETT.

BOTTLE SEAL ASSEMBLING MACHINE.

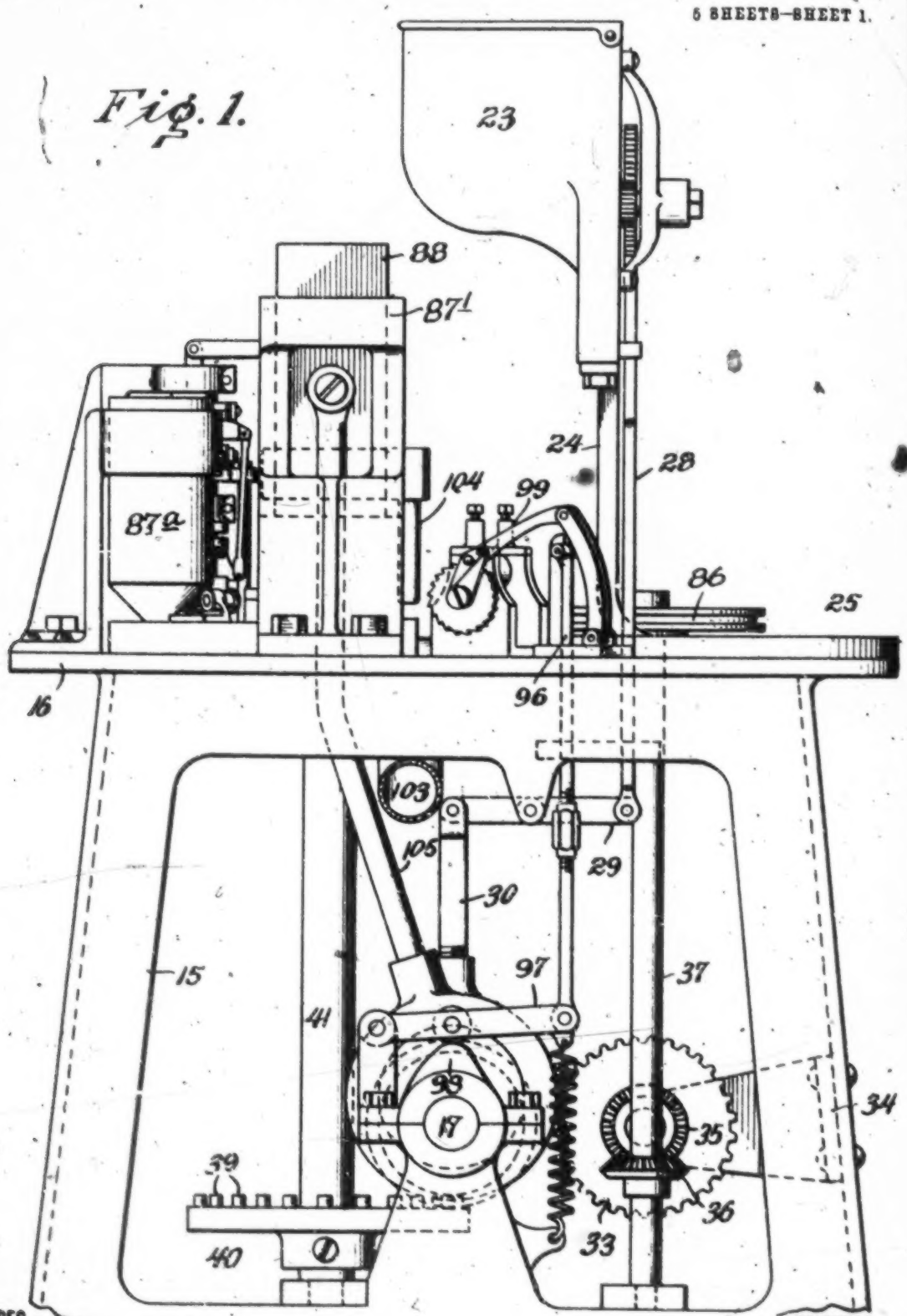
APPLICATION FILED APR. 15, 1909.

993,288.

Patented May 23, 1911.

5 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

Daniel Webster, Jr.

P. A. Conroy

BY

INVENTOR

Leonard Bartlett.

Harry P. Vandlye

ATTORNEY

BLANK

PAGE

1194

L. BARTLETT.

BOTTLE SEAL ASSEMBLING MACHINE.

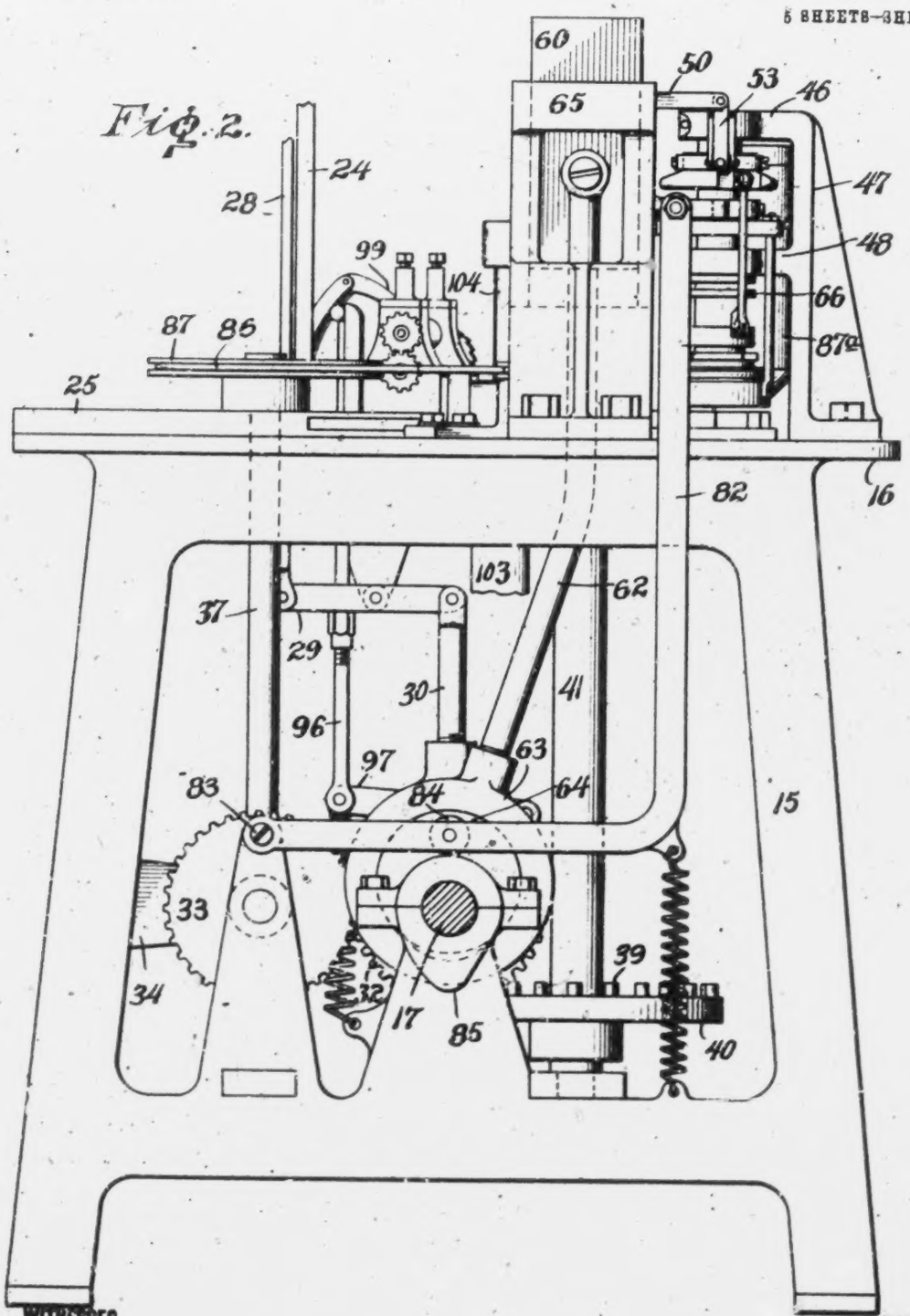
APPLICATION FILED APR. 15, 1909.

993,288.

Patented May 23, 1911.

5 SHEETS—SHEET 2.

Fig. 2.



WITNESSES

Daniel Webster, Jr.

P. A. Conroy.

INVENTOR

Leonard Bartlett.

BY

Garry P. Van Wye

ATTORNEY

1194

BLANK

PAGE

1195

L. BARTLETT.

BOTTLE SEAL ASSEMBLING MACHINE.

APPLICATION FILED APR. 15, 1909.

993,288.

Patented May 23, 1911.

5 SHEETS—SHEET 3.

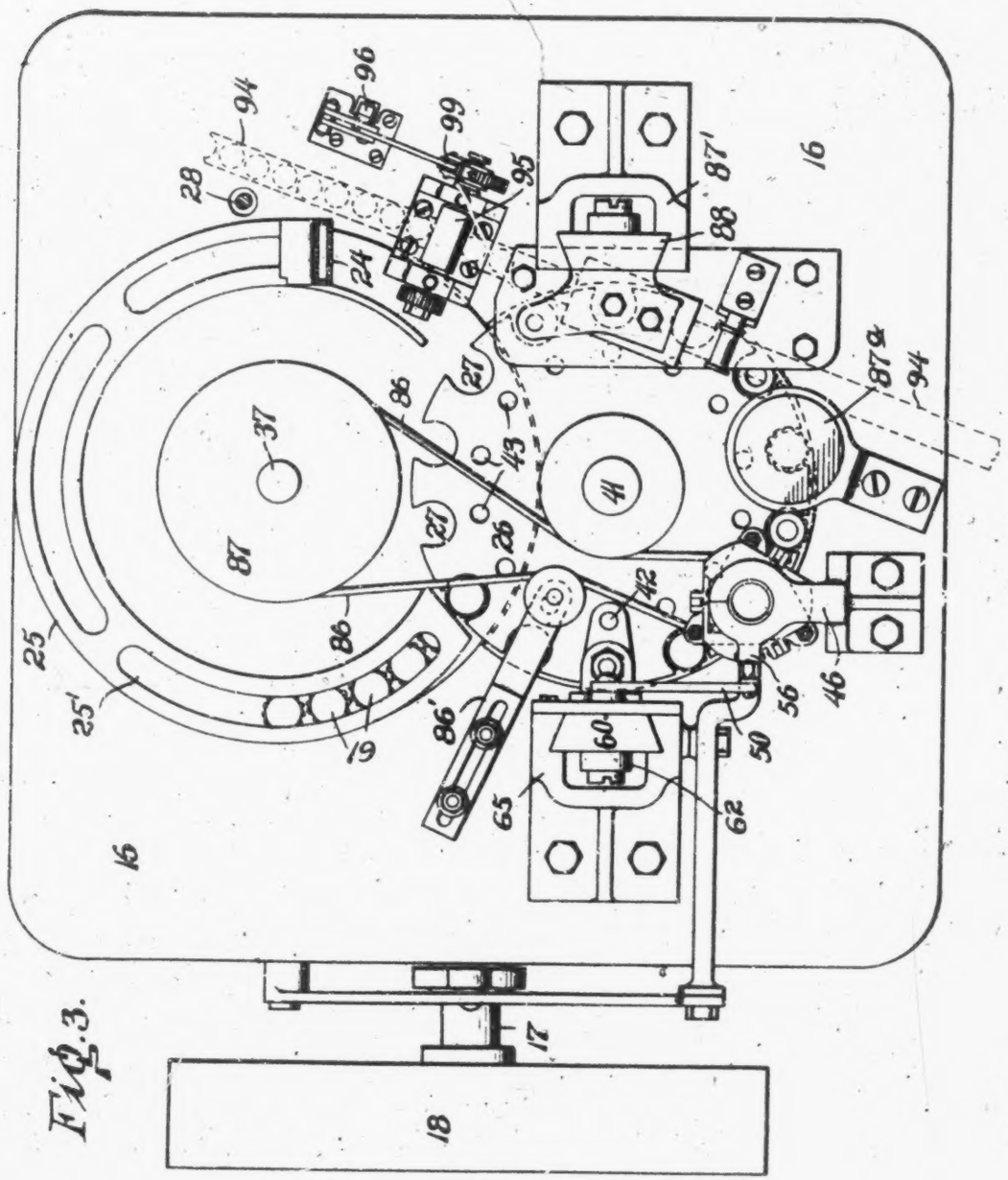


Fig. 3.

WITNESSES

Daniel Webster, Jr.

P. A. Conroy

INVENTOR

Leonard Bartlett.

BY

Garry P. VanWye

ATTORNEY

BLANK

PAGE

1196

L. BARTLETT.

BOTTLE SEAL ASSEMBLING MACHINE.

APPLICATION FILED APR. 15, 1909.

993,288.

Patented May 23, 1911.

5 SHEETS—SHEET 4.

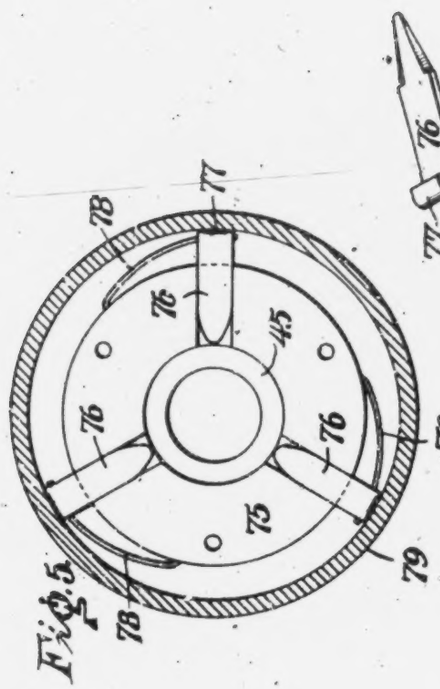


Fig. 5.



Fig. 7.

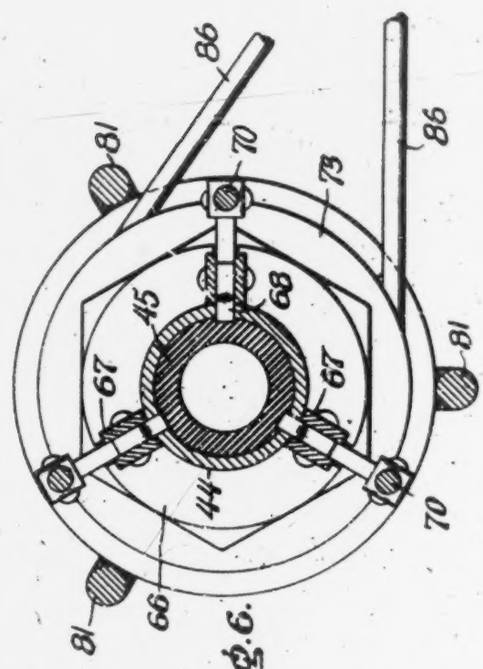


Fig. 6.

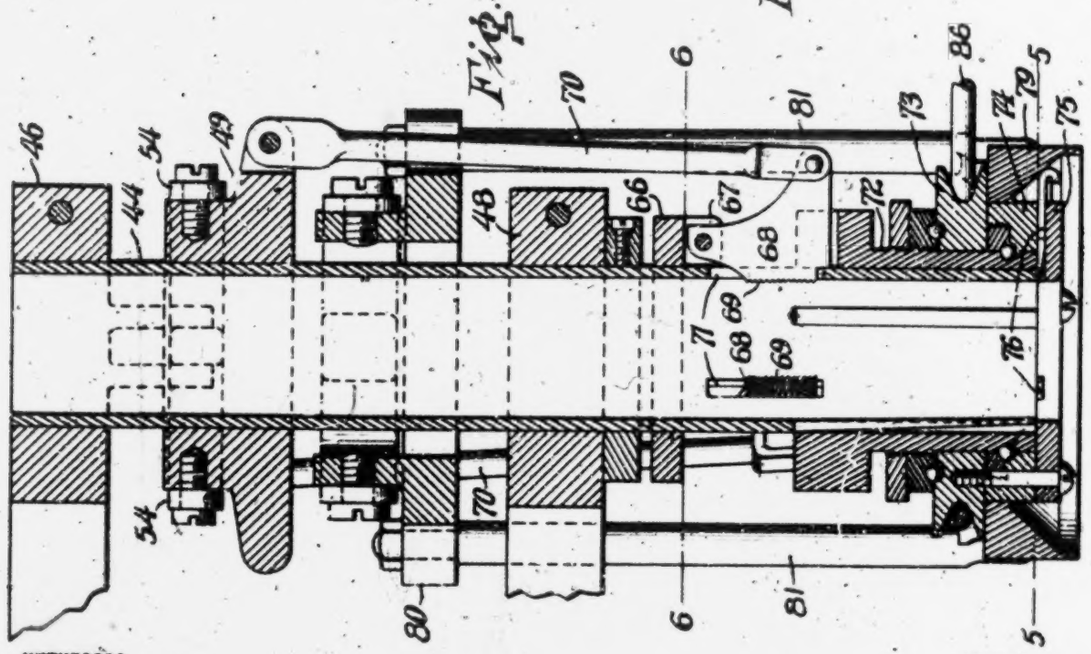


Fig. 4.

WITNESSES

Daniel Webster, Jr.

P. A. Conroy.

INVENTOR

Leonard Bartlett

BY

Garry P. Van Wye

ATTORNEY

BLANK

PAGE

1197

L. BARTLETT.

BOTTLE SEAL ASSEMBLING MACHINE.

APPLICATION FILED APR. 15, 1909.

993,288.

Patented May 23, 1911.

5 SHEETS—SHEET 5.

Fig. 8.

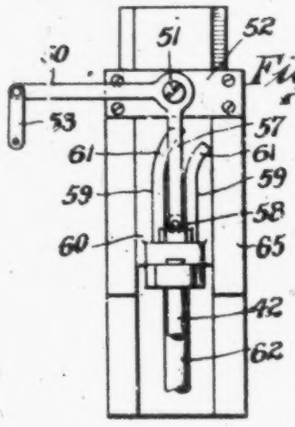


Fig. 9.

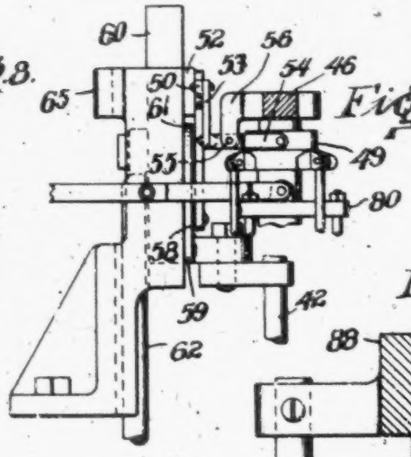


Fig. 10.

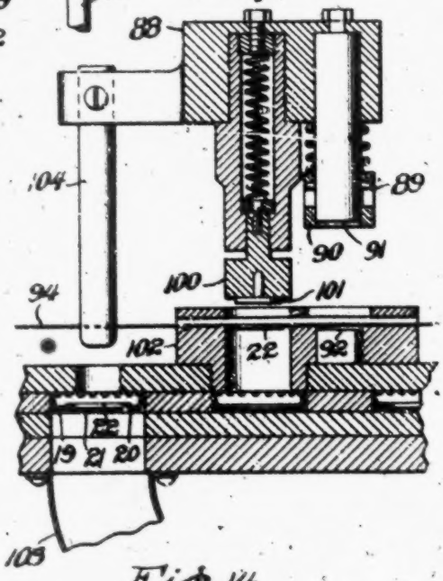


Fig. 11.

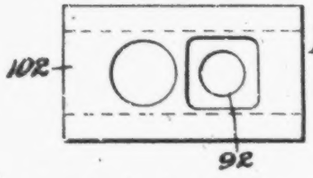


Fig. 12.

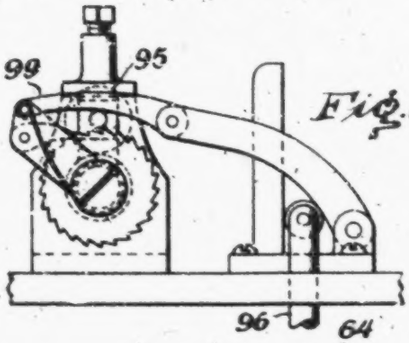


Fig. 14.

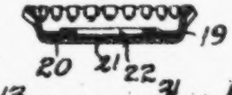
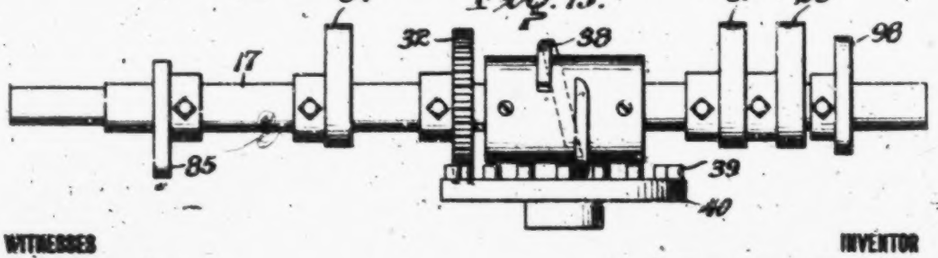


Fig. 13.



WITNESSES

Daniel Webster, Jr.

P. A. Conroy

INVENTOR

Leonard Bartlett.

BY

Gary P. Van Wye

ATTORNEY

UNITED STATES PATENT OFFICE.

LEONARD BARTLETT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO AMERICAN CORK AND SEAL COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF MAINE.

BOTTLE-SEAL-ASSEMBLING MACHINE.

993,288. Specification of Letters Patent. Patented May 23, 1911.

Application filed April 15, 1908. Serial No. 426,965.

To all whom it may concern:

Be it known that I, LEONARD BARTLETT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Bottle-Seal-Assembling Machine, of which the following is a specification.

This invention relates to machines for assembling bottle seals in which rubber gaskets and aluminum protecting disks are used; and has for its object to provide a machine of the character described in which the metal sealing caps may be placed, and the rubber gaskets and aluminum protecting disks are automatically placed in position within the cap; a further object being to provide a suitable gasket cutting machine which will operate in conjunction with the driving mechanism of the assembling machine, and which will cut the rubber gaskets and deposit them within the metal cap; a further object being to provide suitable mechanism to cut out and form the aluminum disks, and to force the disk when formed into the cap after suitable pasting apparatus has deposited sufficient paste to secure the disk to the metal cap, whereby the aluminum disk is brought into close contact with the center of the metal cap and may be secured thereto by the paste.

It is also the object of this invention to provide simple and coördinate parts which will work together to make an effective assembling machine.

The invention is illustrated in the accompanying drawings in which—

Figure 1, is a side elevation of a bottle seal assembling machine constructed according to my invention; Fig. 2, is a view of the opposite side of the machine, with the cap hopper and feed mechanism removed; Fig. 3, is a top plan view of the machine; Fig. 4, is a vertical section of the gasket cutting machine; Fig. 5, is a sectional view thereof on the line 5—5 of Fig. 4; Fig. 6, is a sectional view on the line 6—6, of Fig. 4; Fig. 7, is a perspective view of one of the cutting blades shown in Figs. 4, and 5; Fig. 8, is a face view of a part of the operating device for the gasket cutting machine; Fig. 9, is a side view of the same; Fig. 10, is a vertical section of the aluminum disk forming and depositing apparatus; Fig. 11, is a plan view of the forming and punching die; Fig. 12, is a side elevation of the operating mechanism for the aluminum feed; and, Fig. 13, is a side view of the main shaft and cams; and Fig. 14, is a sectional view of the seal assembled, on a larger scale.

In the drawings, like numerals of reference refer to the same parts in each of the views; and in practice I provide a frame 15, having a table, or platform 16, on which are mounted the assembling parts hereinafter described; and in the frame adjacent to the base thereof is mounted a shaft 17, which may be driven by a belt pulley as 18, by which the entire assembling machine may be operated.

The machine is adapted to assemble a seal, such as shown in Fig. 14, comprising a metal sealing cap, as 19, a rubber ring-shaped gasket 20, and an aluminum protecting disk 21, with a depressed center 22, adapted to contact with the center of the cap 19, within the gasket 20, and to be secured to said cap by adhesive material, or in any desired manner. To assemble these seals quickly, and in an economical manner, a hopper 23, is provided in which the metal caps may be placed, and in which apparatus of well known construction is operated to feed the caps down the chute 24, to a rotatable feed wheel 25′, within the channel 25, which carries the caps around to the wheel 26, having spaced notches, as 27, in the periphery thereof into which the caps are fed, and by this wheel 26, are fed to the different parts of the assembling machine in regular and definite order.

To operate the parts just described, a shaft 28, is pivotally connected with the rocking bar 29, the opposite end of which is connected with the shaft 30, which is operated vertically by the cam 31, on the shaft 17. This mechanism operates the hopper feed mechanism in a manner well known, and consequently, not more fully illustrated here. The feed wheel 25′, is rotated by the spur gear 32, on the shaft 17, which engages the spur gear 33, bracketed on the frame at 34, and which operates the beveled gears 35, and 36, and the shaft 37, connected with this wheel,—this part also being a well known construction. The notched wheel 26, is operated by mean of a worm 38, on the shaft 17, which engages successively pins 39, on

the wheel 40, mounted on the shaft 41, on the top of which the wheel 26, is mounted, whereby the wheel 26, is rotated forward in regular steps to carry the caps to the several assembling parts, and leave them in position a sufficient length of time for the parts to operate upon.

It will be understood that the metal caps are formed in separate machines, or punches; and are placed in this machine solely for the purpose of having the gaskets and protecting disks placed therein. Consequently, the parts described thus far have to simply feed these caps to the wheel 26, so as to place a cap in each notch 27, with the proper side up to receive the gasket and disk.

It is one object of this invention to form the metal disk and cut it out, and also form or cut the rubber gasket as well as assemble these parts in the cap to form the seal. As the gasket is deposited first, I will describe this part at this point, and the other parts of the machine in the regular order in which they operate.

It will be understood that the several parts, or assembling devices, are spaced a suitable distance apart, so that when the wheel 26, is held stationary by the pin 42, engaging successively the holes 43, in this wheel, in a manner well known in such machines, one of the notches will be directly beneath each device, and will remain there a sufficient length of time for each device to operate.

Referring to the gasket forming machine, or device,—this part is specially shown in a partial view at the right of Fig. 2, and specifically in Figs. 4, 5, 6, and 7; and the operating means specifically in Figs. 8 and 9. The gasket machine comprises a tube 44, of a size to receive a tubular section of rubber 45, as shown in Figs. 5, and 6; and the upper end of the tube 44, is secured in the arm 46, of the standard 47, and a second arm 48, supports the tube 44 centrally thereof, as particularly shown in Fig. 4. Slidably mounted on the tube 44, is an annular block 49, which is pivotally connected with a lever 50, which is pivoted at 51, to a cross plate 52, as specially shown in Fig. 8. The lever 50, is connected with the block 49, by the link 53, and yoke 54, which is pivoted at 55, to an arm 56, projecting from the arm 46. The lever 50, is provided with a depending arm 57, on the lower end of which is a friction roller 58, which is mounted between two guides 59, on a vertically movable block 60; and the upper ends of the guides are concentrically curved, as shown at 61, whereby when the block 60, descends until the roller 58, engages the curved parts of the guides, the roller will be carried laterally, as will be understood, and with it the lower end of the arm 57, of the lever 50, as will also be understood, causing the outer end of the lever 50, to descend; and as this is connected with the block 49, through link 53, and yoke 54, the block 49, will forced downward on the tube 44. The s block 60, is connected with a shaft 62, cured to a strap 63, on a cam 64, on shaft 17, by which this block is moved in guide frame 65. An annular ring 66, is slidably mounted on the tube 44, and is p vided with lugs 67, in which are pivota mounted the feed pawls 68, preferably t in number, and substantially triangu shape, as shown at the right in Fig. 4, w the vertical side provided with teeth, as in order to take a firm hold on the rubb tube. Pivotally mounted in the third corn of each pawl is a link 70, the upper end o which is pivotally connected with the annular block 49, and these links, three in number as shown, form the only connection between the block 49, and the ring 66, so that in lifting the annular block 49, the ring will be raised a short distance through the links 70, and pawls 68; but these links being connected with the outer corners of the triangular-shaped pawls, the pawls will be drawn backward out of the slots 71, in the tube 44. When, however, the annular block 49, is driven downward, as previously described, the links will drive the pawls inward until in tight contact with the rubber tube, and the rubber tube will be carried downward a short distance with the pawls and ring 66, as will be understood, to feed the rubber tube the required amount to form a gasket. Mounted on the lower end of the tube 44, is a sleeve 72, on which is rotatably mounted a belt wheel 73, secured to a ring 74, to which is clamped a grooved ring 75, in the grooves of which are mounted blades 76, preferably three in number, and of the form shown specially in Fig. 7, each blade having a hooked end 77, in which is mounted a spring 78, whereby the ends of the blades are held normally against the cam ring 79, which is non-rotatable. This cam ring is secured to a head 80, by posts 81, and is vertically movable therewith. The head 80, is loosely mounted on the tube 44, and is operated vertically by a crank lever 82, pivoted to the frame at 83, and carrying a friction roller 84, which engages the cam 85, on the shaft 17, the head 80, being sufficiently loose to allow of operation by the lever 82.

In operation the pulley 73, is operated by a belt 86, which engages a pulley 87, on the shaft 37. When a cap is directly beneath the tube 44, and the rubber has been driven down the required length to form a gasket, the cam 85 operates to force the head 80, downward, and with it the cam ring 79, the cam surface of which bears against the hooked end of the blades 76; and as this ring descends, the blades are driven inward into the rubber tube 45; and as the blades

are in the rotatable part, they are carried around rapidly as they are forced inward, thereby cutting off a section of the rubber tube to form a gasket; and, as previously mentioned, the cap being directly beneath, the tube 44, the gasket when cut will drop into the cap, and will be carried forward by the next movement of the wheel 26, and another cap will be brought under the tube for the repetition of the operation. To insure the positive operation of the knives, I prefer to provide a belt tension device, as 86'. After the gasket is deposited in the cap, the cap and gasket are carried forward to the paste machine 87ª, where a suitable amount of paste, or adhesive material is deposited in any desired manner so as to engage the center of the cap within the gasket ring; and the cap and gasket are then carried forward to the aluminum disk former and die. This part comprises a frame 87', carrying the sliding head 88, in which is mounted the forming tool 89, comprising a spring-controlled contact block 90, and a plunger 91, which forces the aluminum into the cavity 92, to form the projecting portion 22, which afterward engages the center of the cap, as previously described. After the projection 22, is formed, the aluminum strip 94, is fed forward by the feed rolls 95, which are operated by the pawl mechanism shown in Fig. 12, operated by a plunger shaft 96, connected with a lever 97, operated by a cam 98, the pawl mechanism in Fig. 1, being indicated by 99. By this arrangement the aluminum is fed forward step by step as needed, and the required distance so that at the next movement the projecting portion 22, will be directly beneath the punch 100, and centrally thereof, so that the circular plate 101, of the punch will enter this projection, and after the disk is punched out and carried down through the die 102, the plate 101, will force the portion 22, into close contact with the center of the cap within the gasket ring, and the cement, or adhesive material will secure this portion to the cap whereby the rubber gasket will be permanently secured in position. After the seal is assembled, as described, it is carried forward to the chute 103, and a plunger 104, secured to the punch head, will insure the dislodgment of the completed seal, as will be understood. The punch is operated by a shaft 105, and cam 106, on the shaft 17.

As the operation of the several parts has been fully described in connection with each part, it will not be necessary to again describe the operation of the complete machine further than to state that as all of the parts are operated by the main driving shaft 17, on which the respective cams are mounted, and adjusted to bring into action the several parts at the proper time to insure the perfect working of the machine, all the parts will work together harmoniously and automatically to insure the production of perfect seals.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is—

1. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting device, and a disk forming device, and means to feed the caps from said feeding device to the gasket cutting device and disk forming device consecutively, for the purpose set forth.

2. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting device, and a disk forming and placing device, means to feed a cap successively from said feeding device to the other devices named, and means to operate said parts in unison, for the purpose set forth.

3. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting and placing device, a paste depositing device, and a disk depositing device, means to feed a cap successively from said feeding device to the other devices named, and means to operate said parts in unison, for the purpose set forth.

4. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting and placing device, a paste depositing device, and a disk placing device, means to feed a cap successively from said feeding device to the other devices named, and means to operate said devices harmoniously, for the purpose set forth.

5. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting and placing device, a paste depositing device, and a disk forming and placing device, means to feed a cap successively from said feeding device to the other devices named, and means to operate said devices in harmony, for the purpose set forth.

6. A bottle seal assembling machine comprising a cap feeding device, a gasket placing device, and a disk forming and placing device, means to feed a cap from said feeding device to the other devices successively, and means to operate all of said devices in unison, for the purpose set forth.

7. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting and placing device, a paste depositing device, and a disk forming and placing device, and a driving shaft carrying cams and a gear, said cams being so mounted as to operate said parts in harmony, as and for the purpose set forth.

8. In a bottle seal assembling machine, a gasket cutting device comprising a material holder, a feeding device, a rotatable part, and means to rotate the same, spring-controlled blades mounted to move in a radial direction in said rotatable part, means to

force said blades into the gasket material periodically, and means to operate said feeding device alternately with said blade-forcing-means, for the purpose set forth.

9. In a bottle seal assembling machine, a gasket cutting device comprising a material holding tube, a slide block mounted thereon, a slide ring mounted on said tube beneath said block, triangular-shaped pawls pivoted to said ring, and having teeth adapted to pass within slots in said holding tube to engage the gasket material, links connecting the outer corner of said pawls and said block, means to raise and lower said block whereby said ring is raised and lowered and said pawls are operated to feed said material, a rotatable member at the bottom of said tube and means to rotate the same, blades in said rotatable member, and a cam ring adapted to force said blades into the gasket material, and a main shaft on said machine adapted to operate said block and said cam ring alternately, as and for the purpose set forth.

10. In a bottle seal assembling machine, a disk forming and placing device comprising a pressure block and forming tool and die, and a cutting out die and placing tool carried by the same head, means to feed the metal from said forming tool and die to said cutting out die whereby the metal that is acted on by the forming die at one stroke is operated on by the cutting out die at the next stroke and a disk with a cup-shaped center and laterally-extending flange is formed and placed in position, and means to operate said device in harmony with the other parts of the assembling machine, for the purpose set forth.

11. In a bottle seal assembling machine, a disk forming tool and die and a combined cutting out die and placing tool carried by the same head, means to feed the metal from said forming tool and die to said cutting out die whereby the metal that is acted on by the forming die at one stroke is operated on by the cutting out die at the next stroke with the disk unchanged in shape by the cutting out die, said cutting out die and placing tool being spring controlled, for the purpose set forth.

12. In a device of the class described, the combination of mechanism for automatically cutting a strip of sealing substance into sections, mechanism for automatically positioning such sections within metallic caps, mechanism for automatically bringing said caps into position for receiving said sealing substance, mechanism for automatically forming a retaining member for said section, and mechanism for automatically placing and securing said retaining member in place within the cap, all of the mechanism being driven from a common power shaft, substantially as described.

13. In a device of the class described, the combination of mechanism for feeding a strip of sealing substance into position to be cut into sections, means for automatically performing said cutting operation, a rotatable ring having a series of recesses therein adapted to carry metallic caps, means for automatically rotating said ring in a step by step movement, means for positioning the severed section of sealing substance within said cap, a reel carrying a roll of sheet metal, means for feeding said sheet of metal into position to have retaining members formed from the sealing substance formed and cut therefrom by forming and cutting dies, means for positioning and securing said retaining members within the cap, and means for depositing a drop of adhesive substance within the cap prior to the insertion of the retaining member, substantially as described.

14. In a bottle seal assembling machine, a gasket placing device, and a disk forming and placing device, means to feed a cap from said gasket placing device to said disk forming and placing device, and means to operate both of said devices in unison.

Dated this 8th day of April, 1909.

LEONARD BARTLETT.

Witnesses:

WM. A. BLAIR,

D. C. WAINEWRIGHT.

BLANK

PAGE

1202

Oct. 19, 1926. 1,603,786

M. MARSA

METHOD OF MANUFACTURING BOTTLE CLOSURES

Filed May 15, 1925

Fig. 1.

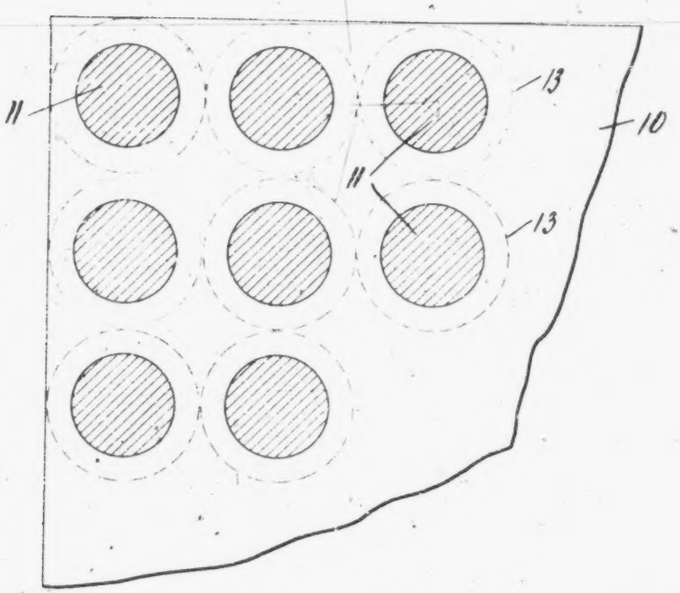
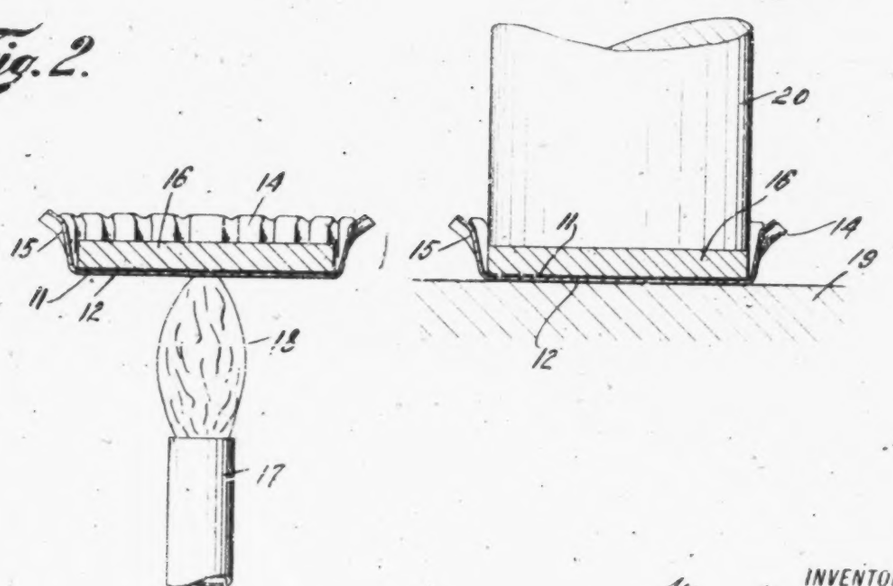


Fig. 3.

Fig. 2.



INVENTOR
M. Marsa
BY
Sigmund Herzog
ATTORNEY

Patented Oct. 19, 1926. 1,603,786

UNITED STATES PATENT OFFICE.

MELCHOR MARSA, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO NEW PROCESS CORK COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

METHOD OF MANUFACTURING BOTTLE CLOSURES.

Application filed May 15, 1925. Serial No. 30,531.

The present invention relates to the manufacture of bottle closures of the cap variety, including those commonly known as "crown corks".

Closures of this type usually comprise a metallic cap, having a corrugated flange to be locked to the exterior of the bottle neck, and a sealing disk or packing of cork or the like within and cemented to the cap and adapted to be seated against the top of the neck of a bottle, to make a gas- and liquid-tight joint.

Various kinds of cementing materials have been employed heretofore in producing these closures, and the method of making the closure depends mainly on the character of the cementing material employed. In some cases, for instance, fusible cements or binding materials are used; in others cements are employed which are coagulated by heat. As far as known, in all closures heretofore manufactured the cementing material is inserted into the metallic cap after the same has been shaped or formed, preferably by stamping operation, and the sealing or packing disk deposited into the cap on top of the cementing material, the assembled closure being then subjected to further operations, so as to unite the disk with the cap by the aid of the cement.

The main object of the present invention is to reduce the number of steps heretofore employed in assembling and uniting the elements of the closures, and thereby not only simplifying the machines by which the closures are assembled and united, but also reducing the period of manufacture due to the number of reduced steps of the method employed.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the method herein described consists, generally speaking, in applying a cementing material to the metal sheet from which the caps are cut and formed into caps, more particularly to those portions of the sheet which are to constitute the inner faces of the heads of the caps; forming the caps; inserting thereinto the packing disks; and then uniting the caps and disks by the aid of the cementing material.

The several steps of one of the many possible methods are illustrated in the accompanying drawings, in which:

Figure 1 illustrates the surface of a piece of sheet metal of which the caps are to be formed, having the cementing medium applied thereto in circular spots; Fig. 2 is a central vertical section taken through the assembled closure, the same being heated by a source of heat, such as a gas flame; and Fig. 3 is a similar section taken through the closure, the elements thereof being held under pressure while being cooled.

Referring now to the drawings, the numeral 10 indicates a piece of sheet metal, to one face of which is applied in circular spots 11 a cementing medium. This cementing medium is, preferably, a resinous substance in solution, it being odorless and tasteless in order to meet the requirements, and it being applied to the sheet in any suitable manner while in solution. The circular spots 11 are of a size corresponding substantially to that of the inner faces of the heads 12 of the caps to be formed, and are properly spaced corresponding to the spacing of the dies of the press on which the sheet is initially cut along the dotted lines 13 in the process of shaping and forming the caps.

After the cementing material has been applied to the metal sheet, the latter is subjected to high temperature, preferably, in an oven, to evaporate the solvent of the cementing material. The sheet may thus be handled without danger of removing the cementing material therefrom.

The sheet is then placed into a press and the caps shaped and formed, one of the same being indicated by the numeral 14 (Figs. 2 and 3). This cap comprises a head 12, as above stated, and a corrugated flange 15, the latter being applied to and locked to the exterior of the bottle neck to be closed. On top of the cementing material is placed within the cap a packing disk 16 of cork or the like, and thereafter heat is applied to the assembled elements of the closure. Any suitable source of heat may be used, for instance a gas burner 17, from which issues a jet 18, preferably striking the outer face of the head of the cap. The cementing material is thus fused. The assembled closure is thereupon placed on a support 19, and the

elements thereof placed under compression, for instance by a plunger 20 bearing against the exposed face of the packing disk 16, and the closure cooled in any suitable manner, to harden the cementing material, whereby the elements of the closure are firmly united.

This type of bottle closures is usually produced on automatic machines, all of which must, of necessity, contain a mechanism for depositing into the metal caps of the closures a cementing material, either in liquid or viscous form, or in the form of paper collet, treated with the cementing medium. It is obvious that the machines for carrying out the method herein described do not need the cement feeding and depositing means, and, therefore, they are not only simplified in construction but permit of a faster turning out of the closures. In the present method the cementing material is applied to the metal sheets, of which the closures are to be formed, simultaneously with the steps necessary for treating the same, preparatory to the cutting and shaping operations. These steps include shellacking of the sheets and decorating the same, that is to say printing thereon trade-marks or other information, which is to appear on the outer faces of the heads of the caps.

It is obvious that, while in the method herein described heat is applied to the assembled closures previous to the elements thereof being placed under compression, heat may be applied, to fuse the cementing material, before the packing disks are placed into the caps, or after the elements of the closure have been put under compression without departing from the invention, which lies mainly in applying the cementing medium to the sheet, of which the caps of the closures are to be shaped and formed. It is entirely immaterial, as far as the method, forming the subject matter of the present application for Letters Patent is concerned, at which stage of manufacture the said cementing medium is fused or softened.

It is also obvious that, instead of a fusible cementing medium, a cement may be employed which is coagulated by heat. In such case the closures, after the elements thereof have been assembled, are placed under compression and heated to coagulate the cement, whereby an almost instantaneous union is formed between the caps and the packing disks therein.

What I claim is:—

1. The method of manufacturing bottle closures of the cap variety which consists in, first, applying to one face of the metal sheet of which the caps of the closures are to be formed a fusible cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, second, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material, third, inserting into a cap a packing disk of cork or the like, fourth, fusing the cementing material, and, fifth placing the cap and the packing disk therein under pressure and cooling the assembled closure so as to harden the cementing material.

2. Those steps of manufacturing bottle closures of the cap variety which consist in, first, applying to one face of the metal sheet of which the caps of the closures are to be formed a cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, and, second, cutting the sheet around the said spot and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material.

3. The method of manufacturing bottle closures of the cap variety which consists in applying to one face of the metal sheet of which the caps of the closures are to be formed a fusible cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head of a cap to be formed, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head only of each cap is substantially covered with cementing material, inserting into a cap a packing disk of cork or the like, fusing the cementing material either before or after the insertion of the packing disk, and cooling the assembled closure under pressure so as to harden the cementing material.

4. The method of manufacturing bottle closures of the cap variety which consists in applying to one face of the metal sheet of which the caps of the closures are to be formed a cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material, inserting into a cap a packing disk of cork or the like, and thereafter subjecting the assembled closure to further treatment to unite the elements thereof.

Signed at New York, in the county of Kings and State of New York, this 8th day of May, A. D. 1925.

MELCHOR MARSA.

BLANK

PAGE

1205

E. AND J. ALBERTI.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300. Patented Dec. 27, 1921.

5 SHEETS—SHEET 1.

Fig. 1.

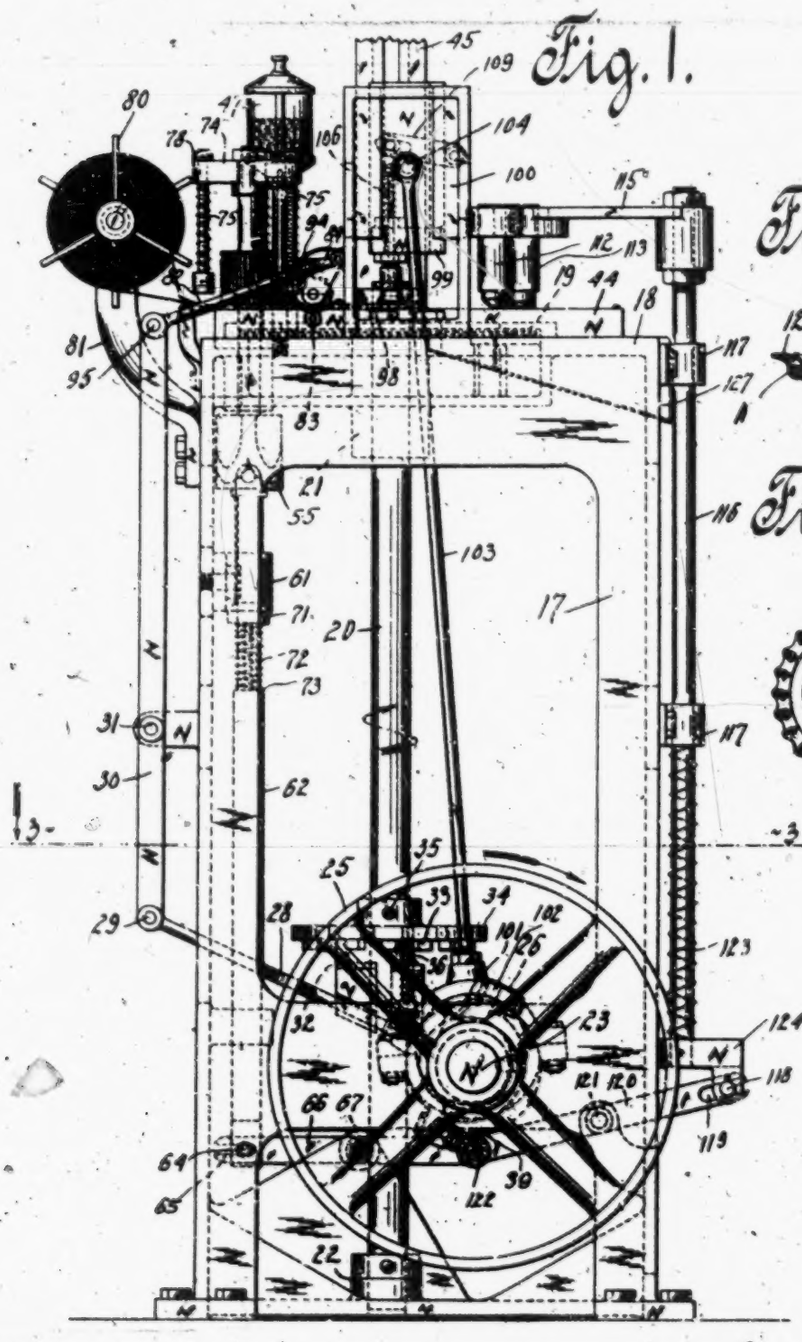


Fig. 14.

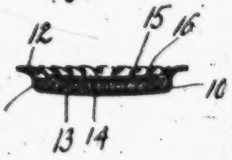
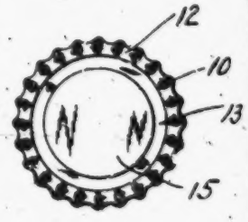


Fig. 15.



WITNESS

H. Raue.

INVENTORS

E. Alberti and

J. Alberti.

BY Symmes Bergy & Thai ATTORNEY

BLANK

PAGE

1206

E. AND J. ALBERTI.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACL.

APPLICATION FILED JUNE 19, 1916.

1,401,300. Patented Dec. 27, 1921.

5 SHEETS—SHEET 2.

Fig. 2.

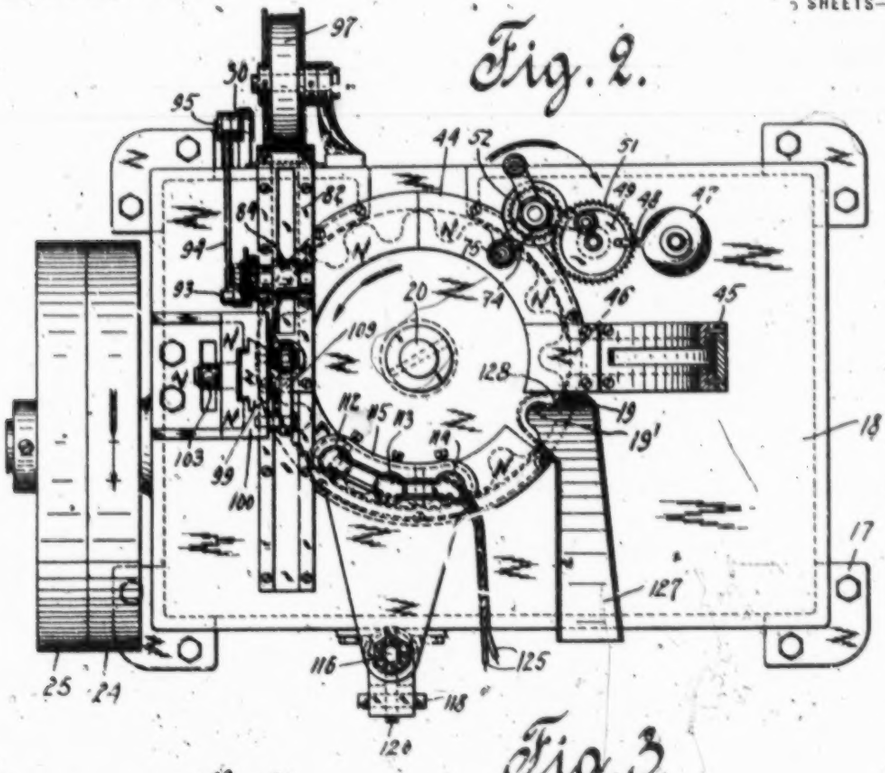
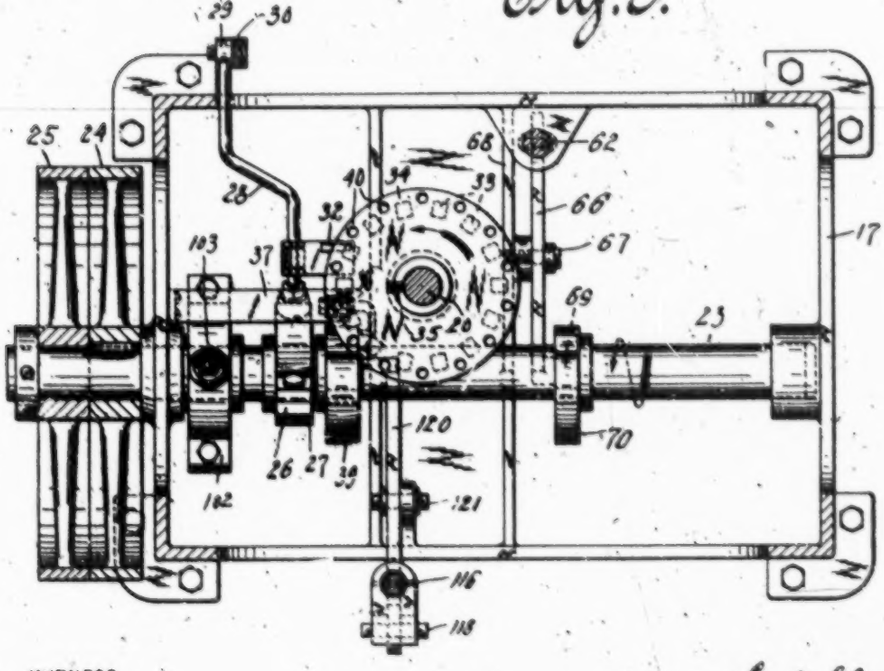


Fig. 3.



WITNESS

H. Kane.

INVENTORS

E. Alberti and

J. Alberti

BY

Symmes Kegg

their ATTORNEY

BLANK

PAGE

1207

E. AND J. ALBERTI.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300. Patented Dec. 27, 1921.

5 SHEETS—SHEET 3.

Fig. 13.

Fig. 4.

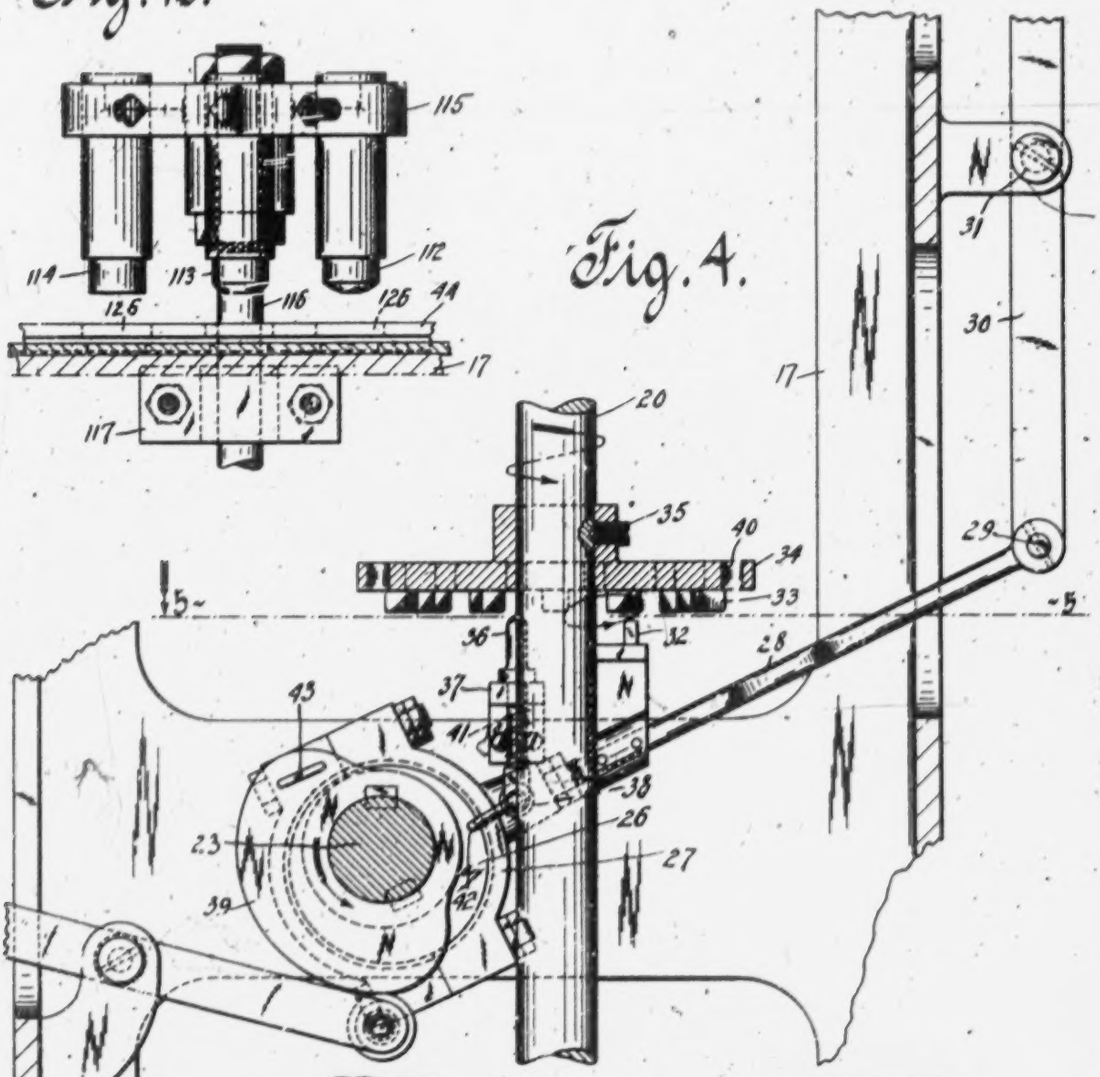
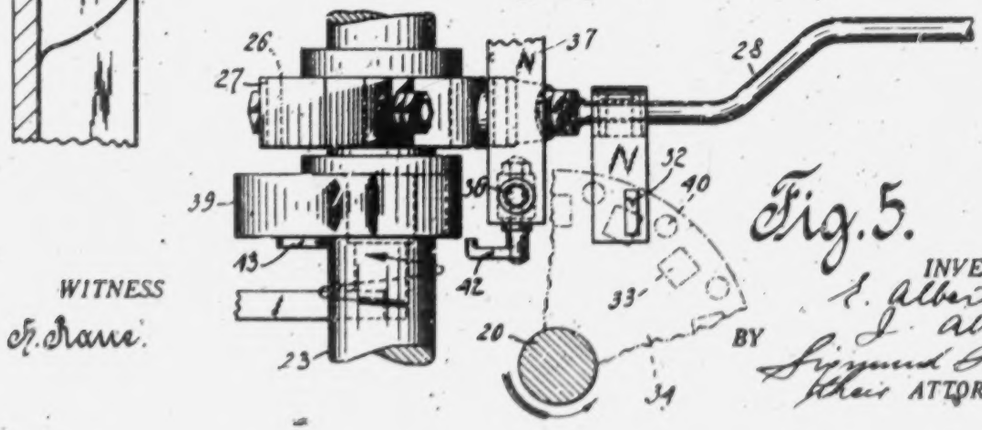


Fig. 5.



WITNESS

F. Rave.

INVENTORS

E. Alberti and

J. Alberti

BY

Sigmund Karger

their ATTORNEY

BLANK

PAGE

1208

E. AND J. ALBERTI.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300. Patented Dec. 27, 1921.

5 SHEETS—SHEET 4.

Fig. 6.

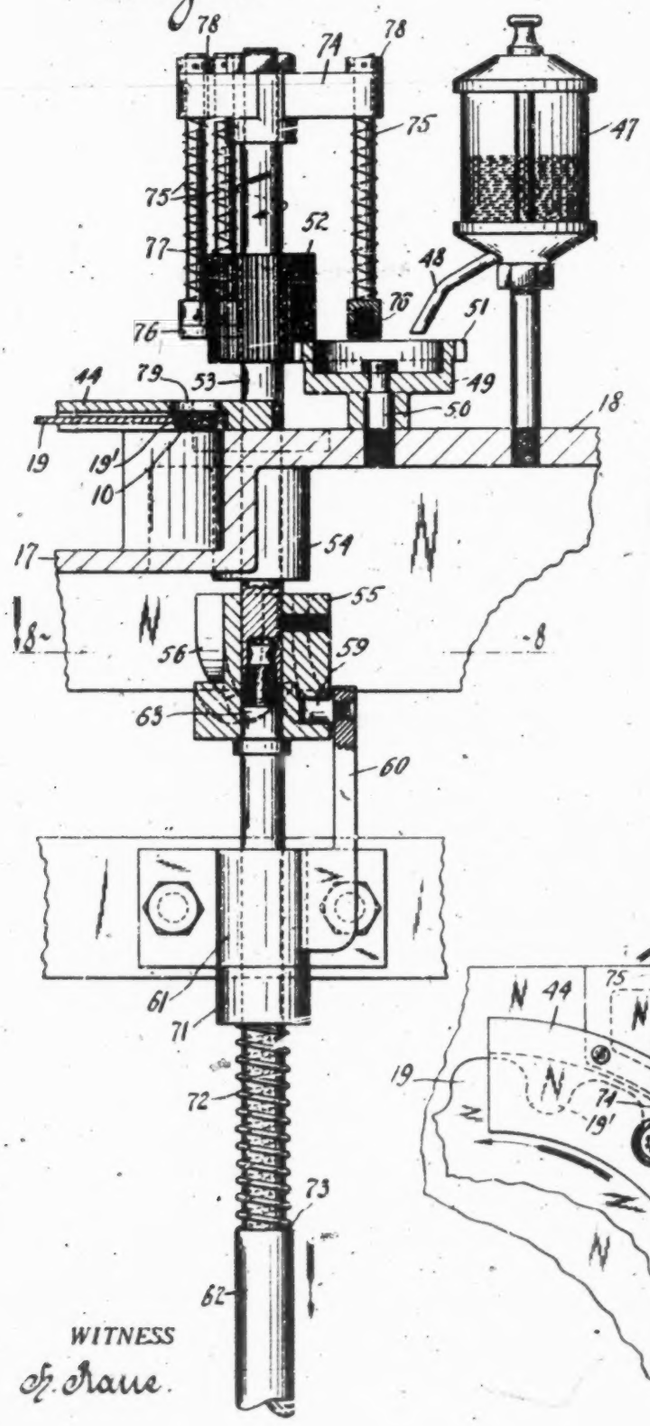


Fig. 8.

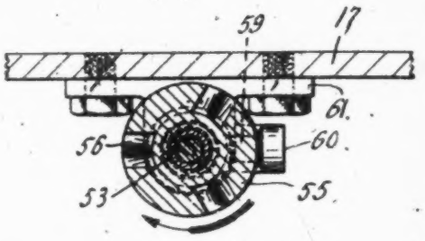
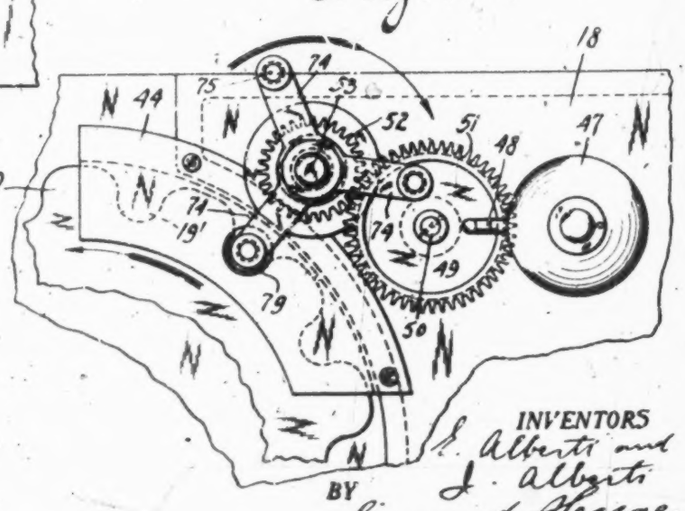


Fig. 7.



WITNESS

H. Raue.

INVENTORS

E. Alberti and

J. Alberti

BY

Raymond Herzog

their ATTORNEY

BLANK

PAGE

1209

E. AND J. ALBERTI.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300. Patented Dec. 27, 1921.

5 SHEETS—SHEET 5.

Fig. 10.

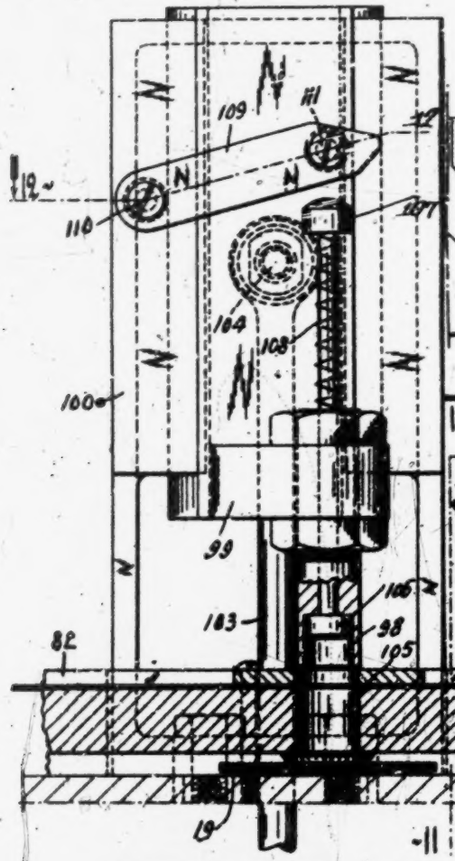


Fig. 9.

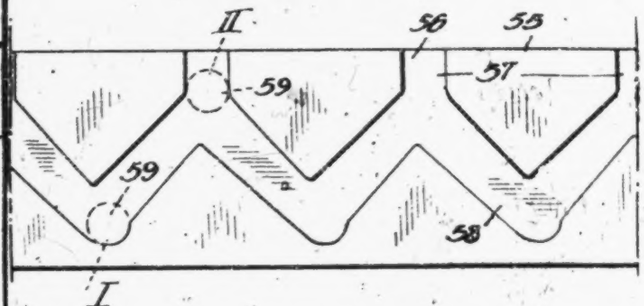
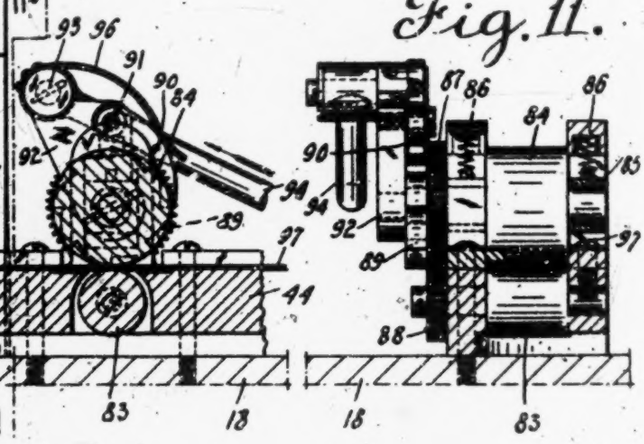


Fig. 11.



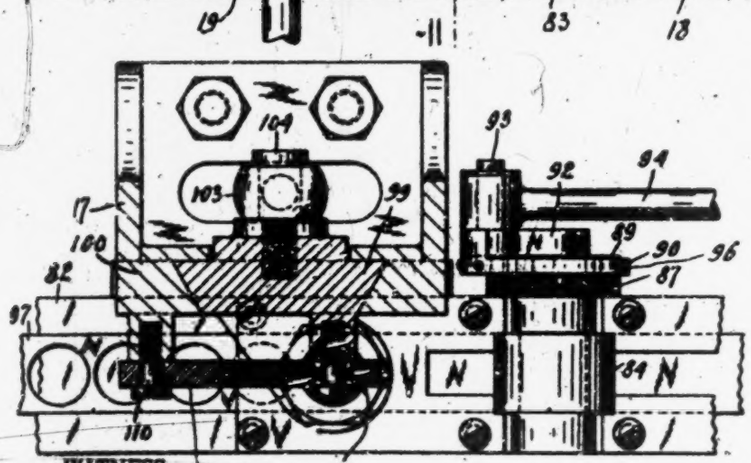


Fig. 12.

INVENTORS
E. Alberti and
J. Alberti
BY
Sigmund Bergg
their ATTORNEY

UNITED STATES PATENT OFFICE.

EMILIO ALBERTI AND JOHN ALBERTI, OF NEW YORK, N. Y., ASSIGNORS TO INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

1,401,300. Specification of Letters Patent. Patented Dec. 27, 1921.

Application filed June 19, 1916. Serial No. 104,550.

To all whom it may concern:

Be it known that we, EMILIO ALBERTI and JOHN ALBERTI, citizens of the United States, and residents of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Manufacturing Closures for Bottles and other Receptacles, of which the following is a specification.

The present invention relates to a machine for manufacturing closures or stoppers for bottles and other receptacles; more particularly it pertains to closures of the cap variety, including those termed "crown corks."

Closures of this type usually comprise a metallic cap or crown to be locked to the neck of the bottle, etc., and a sealing disk or packing of cork or the like, that is held within the cap, for instance by means of a suitable cementing medium. It has been found in practice that in many cases it is impracticable to permit the liquid contents of the bottle or other receptacle to come into contact with the sealing disk of cork or like material, as some liquids, such as pure water, mineral water, or beverages of delicate flavors, are apt to acquire "a corky taste." The commercial value of such liquids is thus greatly impaired. In order to obviate these and similar defects of the crown corks and like closures, it has been found convenient to cement or otherwise attach a thin protecting disk of ductile metal or other material to the exposed face of the sealing disk of the closure, which protecting disk should preferably be of a diameter that is substantially smaller than that of the sealing disk, but slightly larger than the inner diameter of the neck of the receptacle to which the closure is to be applied.

The main object of the present invention is to provide a simple and efficient machine for applying the protecting disks to the closures.

With this and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

The machine constructed in accordance with this invention comprises, broadly speaking, an intermittently moving closure transporting mechanism, in combination with means for applying a cementing medium to the exposed face of the sealing disks, means for cutting from a strip of metal or other material protecting disks and placing the same into the closures, and heating means for the cementing medium.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a machine constructed in accordance with this invention; Fig. 2 is a top plan view of the same; Fig. 3 is a section taken on line 3—3 of Fig. 1; Fig. 4 is a side elevation, partly in section, of the means for actuating the moving parts of the machine; Fig. 5 is a section taken on line 5—5 of Fig. 4; Fig. 6 is a side elevation of the mechanism which applies the cementing means to the exposed faces of the sealing disks of the closures; Fig. 7 is a top plan view thereof; Fig. 8 is a section taken on line 8—8 of Fig. 6; Fig. 9 is a development of a cam shown in Figs. 6 and 8; Fig. 10 is a side elevation of the means for feeding a strip from which the protecting disks are to be cut and the cutting and depositing means coöperating therewith; Fig. 11 is a section taken on line 11—11 of Fig. 10; Fig. 12 is a section taken on line 12—12 of Fig. 10; Fig. 13 is a rear elevation of the heating means of the apparatus; Fig. 14 is a central vertical section taken through a finished closure; and Fig. 15 is a bottom plan view of said closure.

Before describing the machine constructed in accordance with the present invention, the product manufactured thereon will be disclosed in connection with Figs. 14 and 15 of the drawings. In these figures a bottle closure of the crown cork type has been shown for purposes of illustration, it being, however, obvious that the machine may be used for manufacturing generally closures of the cap variety. In Figs. 14 and 15 the numeral 10 indicates a cap, comprising a

substantially cylindrical head 11 and a corrugated flange 12, which is adapted to be locked in the well known manner to the exterior of the bottle neck. In the cap is disposed a sealing disk or packing 13 of cork or like material, which is united with the cap, for instance, by an interposed cementing material 14, or in any other suitable manner. To the outer, or in other words to the exposed face of the sealing disk is attached concentrically with the latter a thin layer of material, such as, for instance chemically pure block tin, aluminum, an alloy of tin, or suitably prepared paper. This layer is made in the form of a disk, denoted by the numeral 15, its diameter being smaller than the diameter of the sealing disk and being stuck to the latter by an interposed cementing medium, shown at 16. This cementing medium should, preferably be of a type that is insoluble in liquids after it has set and formed a union between the packing and the protecting disk 15; it should be insoluble at normal temperatures and at temperatures above normal. It has been found in practice that albumen is particularly adapted for use in connection with these caps, it being inodorous, tasteless, soluble in water and thus readily preparable for use. Moreover albumen coagulates easily and is rendered insoluble at about 140° Fahrenheit, the coagulation resulting in a firm union between the packing of cork or the like and the protecting disk, such union being brought about almost instantaneously.

The machine for applying these protecting disks to the closures comprises a frame 17, including a horizontal table portion 18, above the plane of which is arranged a star wheel 19, having recesses or pockets 19′, into which are seated crown corks in their inverted positions. This star wheel is attached to a vertical shaft 20, which is suitably journaled in bearings 21 and 22 upon the frame and receives intermittent rotary motion, to rotate in a like manner the star wheel 19 in the direction of the arrow shown in Fig. 2 of the drawings. Any suitable means may be provided for this purpose, the one described herein being disclosed only for purposes of illustration. This means comprises a driving shaft 23, journaled in bearings upon the frame and driven in any suitable manner, for instance it may carry a fixed pulley 24 and a loose pulley 25, over which runs a belt (not shown in the drawings). To the driving shaft is keyed an eccentric 26, to the strap 27 of which is attached a rod 28, that is pivoted at 29 to a lever 30, the latter being fulcrumed at 31 to the frame of the machine. To the rod 28 is fixedly secured an upwardly projecting finger 32, that is adapted to coact with projections 33 upon the underface of a disk 34, the latter being rigidly attached, for instance by a screw 35, to the shaft 20. As the eccentric actuates the rod 28, the path described by the finger 32 thereon during each revolution of said eccentric will be an ellipse, as clearly shown in dotted lines in Fig. 4 of the drawings, the result being that said finger is brought into engagement with one of the projections 33 upon the disk 34 and causes the said disk to move in the direction of the arrow shown in Figs. 3 and 5 of the drawings a predetermined portion of a complete turn, after which the said finger is disengaged from the said projection to be brought into engagement with the next projection in the series, and so on. In order to maintain the disk 34 stationary while the finger 32 is disengaged from a projection and brought into engagement with the next in the series, there is a centering lug 36 provided. This lug is slidably disposed in a bracket 37, its lower free end carrying a roller 38, that is adapted to coöperate with a cam 39, the latter being keyed to the driving shaft. The lug coacts with a row of apertures 40 in the disk 34, the cam and the eccentric being keyed to the shaft in such relation that immediately before the finger 32 is disengaged from a projection 33 on the disk 34, the said centering lug is forced into one of the apertures 40 and held therein until the said finger is about to be brought into engagement with the next projection in the series, when a spring 41 coiled upon the centering lug, unseats the latter. There is provided an additional means for disengaging the centering lug 36 from the disk. This means comprises an extension 42 upon the centering lug in the path of a projection 43 upon the cam 39. This projection forces the extension 42 at the proper moment downward, thereby disengaging the center lug from an aperture 40. This additional means is provided in order to prevent breakage of the moving parts of the machine in case the spring 41 should fail to act.

Above the star wheel 19 is mounted upon the table portion 18 a guide 44 for the purpose of holding the crown corks upon the said star wheel. The crown corks are fed in their inverted positions one after the other to the recesses 19′ of the star wheel by any suitable means, for instance the said crown corks may be placed into a hopper and brought by suitable feeding means in proper position into a chute 45, that leads to an aperture 46 in the guide 44. Through this aperture the crown corks are caused to move by means (not shown in the drawings) one after the other into the recesses 19′ in the star wheel. A device of this type is disclosed in application for U. S. Letters Patent, filed by Alexander Bogdanffy and John Alberti, on Oct. 16, 1913, under Serial #795,481. Obviously a crown cork is fed to a recess when the star wheel is at rest, the

latter being mounted in such a manner upon the shaft 20 that, whenever the star wheel is at rest, one of its recesses will be in alinement with the aperture 46 in the guide 44.

The crown corks are preferably assembled on a separate machine and brought into the hopper communicating with the chute 45, although the machine herein described may be combined with and form part of the assembling machine.

The star wheel conveys the crown corks step by step to a mechanism which applies adhesive material to the exposed faces of their sealing disks. The adhesive material is obviously applied to that area of a sealing disk which is to be covered by a protecting disk 15. The mechanism comprises a container 47, holding a cementing medium in liquid form of the type above described. This container is provided with a spout 48, through which the adhesive material flows drop by drop into a, preferably, cylindrical open receptacle 49, that is rotatably mounted upon a spindle 50, the latter being fixedly secured to the table portion 18. Upon this receptacle is formed a gear 51, in mesh with a gear 52, that is keyed or otherwise fixedly attached to a shaft 53, the latter being rotatably mounted in a bearing 54, and carrying upon its lower end a cam 55, that is shown in its developed form in Fig. 9 of the drawings. This cam comprises a cylindrical member, having a peripheral groove 56, said groove comprising three vertical portions 57, which are connected by curved portions 58. In the groove is seated a lug 59, formed upon a standard 60, that is attached to or made integral with a guide 61, into which extends shiftably a rod 62, the upper reduced end 63 of which projects into the cam 55, while its lower end carries a pin 64, that is seated in a slot 65 of a lever 66. This lever is fulcrumed at 67 to a bridge 68 upon the frame 17, and carries upon its free end an anti-friction roller 69, that is in engagement with a cam 70, the latter being keyed to the driving shaft 23. The reduced portion 63 of the rod 62 is connected with the shaft 53 to cause the latter to reciprocate with the rod 62, but allowing the said shaft to rotate upon the said rod. The cam 70 elevates the rod 62, and for lowering the latter there is loosely mounted upon the same a collar 71, against which bears one end of a spring 72, that is coiled upon the said rod, its other end bearing against a shoulder 73 thereon. As the rod 62 is elevated, its collar 71 will abut against the guide 61, whereby the spring 72 is compressed. After the rod has completed its upward stroke and the cam 70 allows it to descend, the spring 72 expands, thereby forcing the rod 62 and the parts connected therewith downward, keeping continuously the anti-friction roller 69 in contact with the cam 70. As the rod 62 is reciprocated, the lug 59 coöperating with the groove 56, causes the shaft 53 to be rotated step by step. When the shaft 53 is in its uppermost position (Fig. 6), the lug 59 is in one of the curved portions 58 of said groove, as shown in dotted lines in Fig. 9 of the drawings (position I). As now the rod 62 descends, the cam 55 is given a partial turn until the lug is brought into the position indicated by the numeral II in Fig. 9 of the drawings. During the further descent of the rod, the shaft 53 is held against rotary motion, owing to the fact that the lug 59 travels in one of the straight portions 57 of the groove. During the upward motion of the rod 62, for some time the shaft 53 is held against rotary motion, but will be given a partial turn when the lug 59 reaches again one of the curved portions 58 of the cam. The purpose of this arrangement will be explained hereinafter.

To the upper end of the shaft 53 is attached a star-like bracket 74, comprising in the case illustrated three arms, in each of which is shiftably mounted a spindle 75. The lower free end of each spindle carries a cylindrical block 76 of rubber or like material. A spring 77, wound upon each spindle, causes the same to descend, its downward movement being limited by a stop 78, which is adapted to abut against the upper face of the respective arm of the bracket 74. The upper face of the bottom of the receptacle 49 is disposed a considerable distance above the upper face of the star wheel, as clearly appears from Fig. 6 of the drawings. The three spindles 75 are located in relation to the star wheel and the receptacle 49 in such a manner that one of the same is, when the shaft 53 is held against rotation, in alinement with the said receptacle and another one is adapted to move through an aperture 79 in the guide 44 into contact with the exposed face of a crown cork on said star wheel. The diameter of the aperture 79 is somewhat larger than that of the head portion of a crown cork, as appears from Fig. 6 of the drawings.

The operation of the cementing material applying device is as follows: When the rod 62 is caused to move downward, one of the rubber blocks 76 contacts with the inner face of the receptacle 49 before another one of said blocks is brought into contact with the exposed area of the crown cork in alinement with the aperture 79 in the guide 44. It is to be noted that the star wheel moves while the rod 62 and the parts carried thereby move upward, and is caused to come to a stop when the said rod moves downward or at least during that period of the downward motion when one of the rubber blocks 76 is caused to contact with the exposed face of the sealing disk of a crown cork. The rubber block coming into con-

tact with the bottom of the receptacle 49 is coated upon its plane underface with adhesive material, and is then moved, upon the next partial turn of the shaft 53, into registering position with the aperture 79 when, in moving downward, it applies the adhesive to a portion of the exposed face of the sealing disk of the crown cork resting therebelow. The springs 77 and the spindles 75 permit a rubber block to contact with a sealing disk for some time, the stroke of the rod 62 being greater than the distance between the sealing disk and the lower face of a block 76, considering the highest position of a block. Inasmuch as the upper face of the bottom of the receptacle 49 is disposed a considerable distance above the star wheel, a rubber block will be in contact with the bottom of the receptacle 49 for a longer period of time than the block is in contact with a sealing disk. There will be ample time thus to coat the underface of a block with adhesive. Inasmuch as the receptacle 49 is rotated, the rubber blocks will contact always with other spots of the receptacle 49, and inasmuch as a rubber block, when in the receptacle, is dragged along the bottom thereof, a proper coating of a block therein will take place.

The crown corks to which adhesive has been applied are conveyed by the star wheel to the means which cuts the protecting disks from a strip and places the same into the crown corks. The strip of metal or other material, from which the protecting disks are to be cut, is wound upon a reel 80, which is suitably journaled in a bracket 81. From this reel the strip is conducted into a guide 82, to pass between feeding rollers 83 and 84. The feeding roller 83 is journaled in the table portion of the machine frame, while the roller 84 is journaled in bearings 85, which project above the table portion and are under the tension of springs 86, forcing the roller 84 toward the roller 83. To the spindle of the roller 84 is fixedly attached a gear 87, in mesh with a pinion 88, that is keyed to the spindle of the roller 83. The roller 84 is actuated by a pawl and ratchet-wheel mechanism. For this purpose a ratchet wheel 89 is fixedly attached to the spindle of the roller 84, in mesh with a pawl 90, that is pivoted at 91 to a frame 92, the latter being oscillatably mounted upon the spindle of the roller 84. To this frame is pivoted at 93 a connecting bar 94, the other end of which is pivoted at 95 to the lever 30 above described. The lever is actuated, as above described, by the eccentric 26. When this eccentric moves the connecting bar in the direction of the arrow indicated in Fig. 10, the frame 92 is shifted so as to bring the pawl 90, which is under the tension of a spring 96, into engagement with one of the teeth of the ratchet wheel, and as the said connecting bar moves in the opposite direction, the feeding rollers are caused to rotate and to advance the strip 97, from which the protecting disks are to be cut, to the cutting means of the machine. The cutting means comprises a tubular punch 98, secured in any suitable manner to a slide 99, that is adapted to reciprocate in a vertical guide 100, the latter being attached to the table portion of the machine frame. The slide is actuated from the driving shaft 23 in the following manner: Upon the said driving shaft is mounted an eccentric 101, its strap 102 having an eccentric rod 103, that is pivoted at 104 to the said slide. The eccentrics 101 and 26 are timed in such a manner that whenever the star wheel is in motion, the slide 99 is caused to move upward and, whenever the star wheel is at rest, the said slide moves downward, whereby the punch 98 cuts a protecting disk from the strip 97, which disk is automatically forced through an opening 105 in the guide 44 into a crown cork, that is held stationary in alinement with the said opening. The means for forcing the disk into the crown cork comprises a stem 106, part of which is disposed within the tubular punch 98, its upper end projecting above the said punch and being provided with a head 107. A spring 108, coiled upon the said stem, rests against the said head and the slide. With the head coöperates a lever 109, that is fulcrumed at 110 and 111 to the guide 100 and slide 99, respectively. This lever is disposed above the head of the stem 106. When, therefore, the slide moves downward and cuts a protecting disk, the lever 109 will be brought into contact with the head 107 after the cutting operation is performed, but before the downward stroke of the slide is completed. After engagement, the stem will be forced downward by the lever 109 and the protecting disk into the crown cork. Upon the upward stroke the spring 108 expands and returns the stem to the position shown in Fig. 10 of the drawings.

The protecting disk having been deposited in the crown cork, the latter is transported by the star wheel within the reach of heating means, which coagulates the cementing medium so as to form a firm union between the protecting and sealing disks, said heating means serving at the same time to flatten the protecting disk to prevent the formation of wrinkles which would materially decrease the value of the product obtained. For this purpose one or more plungers may be used, which may be heated in any suitable manner. In the case illustrated in the drawings there are three plungers made use of, denoted in their order by the numerals 112, 113 and 114. These plungers are carried by and fixedly attached to a bracket 115, that is secured to a recipro-

cable rod 116, mounted in guides 117. Upon the lower end of this rod is formed a pin 118, seated in a slot 119 of a lever 120, that is fulcrumed at 121 to the frame of the machine, and provided upon its free end with an anti-friction roller 122, coöperating with the cam 39 above described. A spring 123, coiled upon the rod 116 and bearing against a head 124 upon the lower portion thereof and against one of the guides 117, holds continuously the anti-friction roller 122 in contact with the cam 39 and causes a downward movement of the plungers. These plungers are heated in the case illustrated in the drawings electrically, the electric conductors being shown at 125, but the means which translate the electric energy into heat has not been shown, as the same is well known and does not form part of this invention. The rod 116 is caused to move on its upward stroke when the star wheel is moving, and to descend when the said star wheel is at rest, whereby the heated plungers move through apertures 126 in the guide 44 into contact with the protecting disks in three neighboring crown corks, the apertures 126 being obviously in alinement with recesses in the star wheel when the latter is at rest. Heat is thus transmitted by the protecting disks, which are in contact with the plungers, to the cementing medium, which is thereby coagulated, and forms a firm union between the protecting and sealing disks. The underface of the plunger 112, which is the first in order to contact with a sealing disk, is convex, so that it comes into contact with the central portion only of a protecting disk. The underface of the next plunger in the series, towit: plunger 113, is less convex so that it will contact with a larger area of a protecting disk, and the underface of the plunger 114 is flat, thus making contact throughout the area of a protecting disk. The purpose of this arrangement is to expel air between the protecting and sealing disks, which air would prevent a proper union between the same. Another purpose of this arrangement is to gradually and effectively flatten the protecting disks, or in other words to prevent the formation of wrinkles in the said disks, which greatly impair the commercial value of crown corks of this type.

After this operation, the crown corks are advanced to a chute 127, into which they are caused to move by an abutment 128 upon the machine frame. In this chute the crown corks slide into a collecting receptacle (not shown).

What we claim is:—

1. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the complete closure, means for placing a protecting disk on top of and in contact with the cementing material, and means for applying pressure to the closure for maintaining said contact.

2. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the complete closure, means for placing a protecting disk on top of and in contact with the cementing material, and means for applying pressure to the closure for maintaining said contact and flattening the protecting disk.

3. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the closure, means for placing a protecting disk on top of and in contact with the cementing material, and a plurality of plungers acting in succession for applying pressure to the closure for maintaining said contact, the acting underface of the last plunger in the series being plane and those of the others convex, whereby they flatten gradually the protecting disk.

4. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the complete closure a suitable cementing medium adapted to be coagulated by heat, means for placing a protecting disk on top of and in contact with the cementing medium, and means for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained.

5. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the complete closure a suitable cementing medium adapted to be coagulated by heat, means for placing a protecting disk on top of and in contact with the cementing medium, and a heating plunger for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained.

6. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the closure a suitable cementing medium adapted to be coagulated by heat, means for placing a protecting disk on top of and in contact with the cementing medium, and a plurality of heated plungers acting in succession for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained, the acting underface of the last plunger in the series

being plane and those of the others convex, whereby they flatten gradually the protecting disk.

7. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the complete closure, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing material, and means for applying pressure to the closure for maintaining said contact.

8. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the complete closure, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing material, and means for applying pressure to the closure for maintaining said contact and flattening the protecting disk.

9. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the closure, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing material, and a plurality of plungers acting in succession for applying pressure to the closure for maintaining said contact, the acting underface of the last plunger in the series being plane and those of the others convex, whereby they flatten gradually the protecting disk.

10. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the complete closure a suitable cementing medium adapted to be coagulated by heat, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing medium, and means for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained.

11. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the complete closure a suitable cementing medium adapted to be coagulated by heat, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing medium, and a heating plunger for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained.

12. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the closure a suitable cementing medium adapted to be coagulated by heat, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing medium, a plurality of heated plungers acting in succession for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained the acting underface of the last plunger in the series being plane and those of the others convex, whereby they flatten gradually the protecting disk.

13. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing medium to a portion of the exposed face of the sealing disk of the closure, means for cutting from a strip of material a protecting disk of a diameter smaller than that of the sealing disk and placing the same concentrically with the sealing disk on top of and in contact with the cementing medium, and means for applying pressure to the closure for maintaining said contact.

14. In a machine for applying protecting disks to closures of the cap variety, a pressure applying means comprising a plurality of plungers, the acting surface of at least one of said plungers being plane and those of the others convex.

Signed at New York, in the county of Kings and State of New York, this 7th day of June, A. D. 1916.

EMILIO ALBERTI.
JOHN ALBERTI.

Witnesses:
FRANZ H. D. WOLF,
SIGMUND HERZOG.

BLANK

PAGE

1216

No. 887,883. PATENTED MAY 19, 1908.

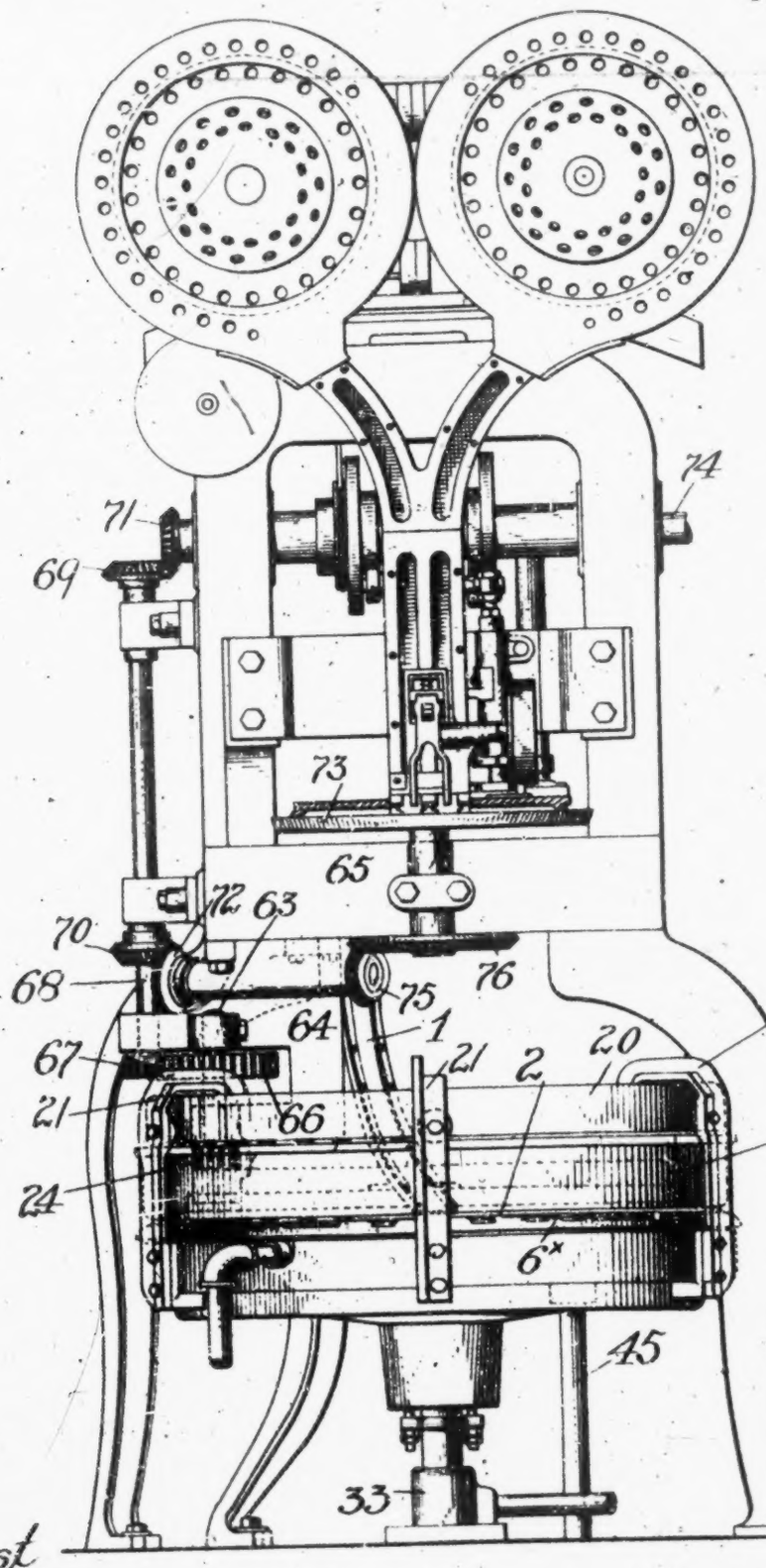
W. H. WHEELER.

APPARATUS FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED SEPT. 20, 1906. RENEWED OCT. 3, 1907.

4 SHEETS—SHEET 1.

Fig. 1.



Inventor

WILLIAM H. WHEELER

Attest

K. E. Curana

Edward N. Santor

by Spear, Middleton, Donaldson & Spear

Attys.

BLANK

PAGE

1217

No. 887,883. PATENTED MAY 19, 1908.

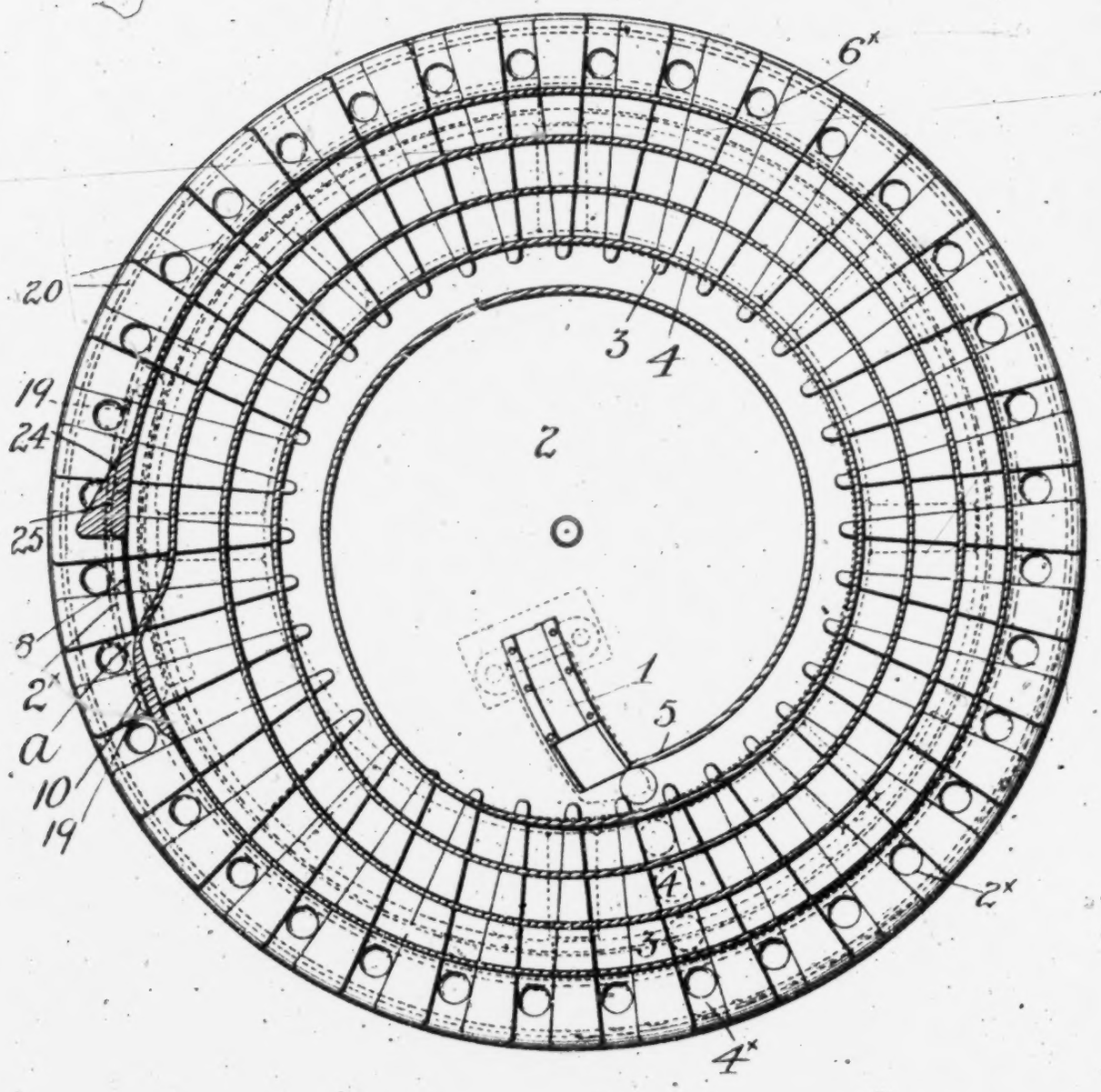
W. H. WHEELER.

APPARATUS FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED SEPT. 20, 1905. RENEWED OCT. 3, 1907.

4 SHEETS—SHEET

Fig. 2.



Attest
W. E. Curran
Edward H. Sartori

Inventor
WILLIAM H. WHEELER
by Spear, Middleton, Donaldson & Spear
Attys.

BLANK

PAGE

1218

No. 887,883. PATENTED MAY 19, 1908.

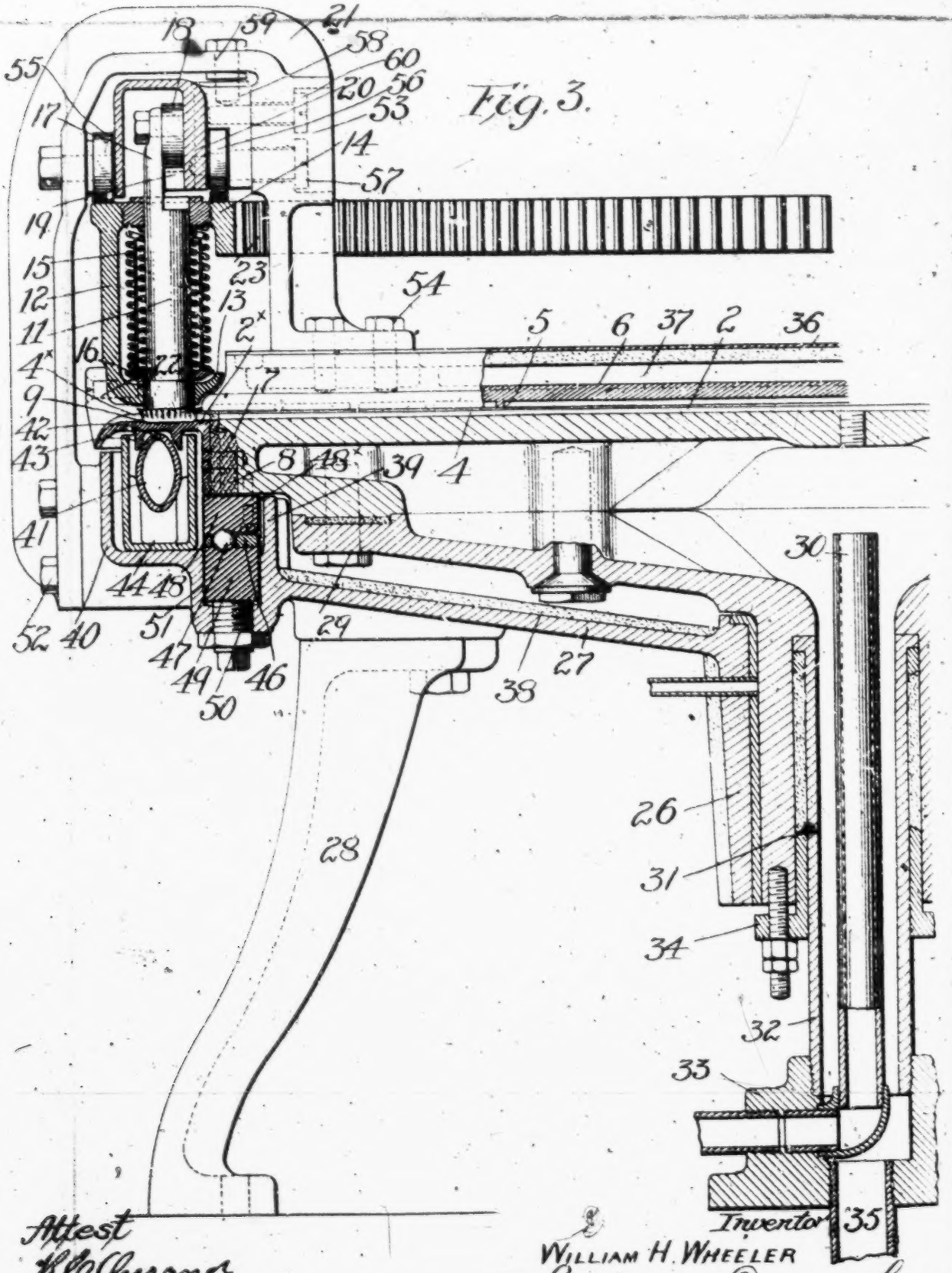
W. H. WHEELER.

APPARATUS FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED SEPT. 20, 1905. RENEWED OCT. 3, 1907.

4 SHEETS—SHEET 3.

Fig. 3.



Attest
H. C. Amrang
Edward N. Lauto

Inventor
William H. Wheeler
by Spear, Middleton, Donaldson & Spear
Attys.

BLANK

PAGE

1219

No. 887,883. PATENTED MAY 19, 1908.

W. H. WHEELER.

APPARATUS FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED SEPT. 20, 1906. RENEWED OCT. 3, 1907.

4 SHEETS—SHEET 4.

Fig 4

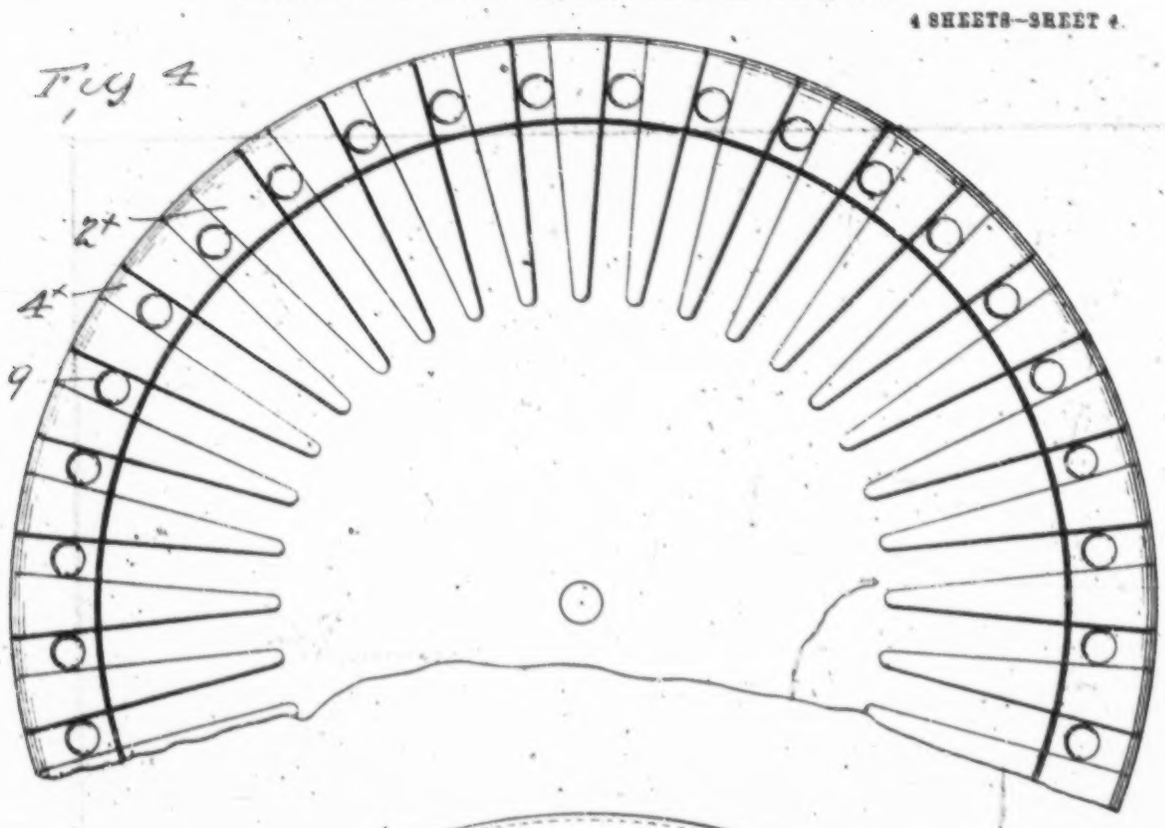


Fig 5

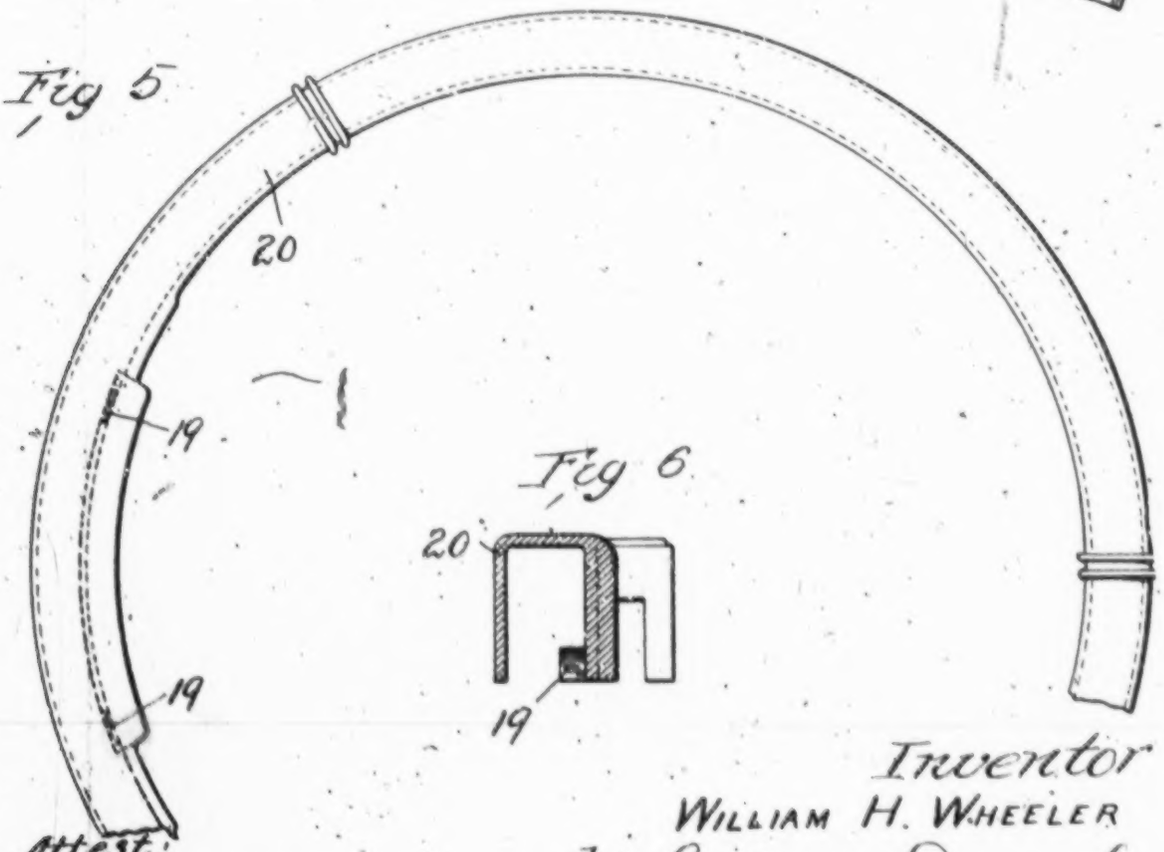


Fig 6

Inventor

WILLIAM H. WHEELER

by Spear, Middleton, Donaldson & Spear

Attys.

Attest:

E. S. Macaulay

R. E. Durand

UNITED STATES PATENT OFFICE.

WILLIAM H. WHEELER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE CROWN CORK AND SEAL CO., OF BALTIMORE, MARYLAND, A CORPORATION.

APPARATUS FOR THE MANUFACTURE OF BOTTLE-CLOSURES.

No. 887,883. Specification of Letters Patent. Patented May 19, 1908.

Application filed September 20, 1905, Serial No. 279,349. Renewed October 3, 1907. Serial No. 395,760.

To all whom it may concern:

Be it known that I, WILLIAM H. WHEELER, a citizen of the United States, residing at No. 1511 Guilford avenue, Baltimore, Maryland, have invented certain new and useful Improvements in Apparatus for the Manufacture of Bottle-Closures, of which the following is a specification.

My invention relates to the manufacture of bottle closures of the class known as crown cork sealing caps or closures, and it concerns particularly a machine for uniting the compressible or resilient packing material to the metallic cap.

In carrying out my invention I employ heat to soften or fuse the protecting and binding medium located between the packing or sealing gasket and the metal cap and after the parts are thoroughly heated they are allowed to cool or subjected to artificial cooling, and during this time they are subjected to pressure so as to firmly unite the packing or gasket to the cap by the binding and protecting medium. During the heating action of the parts they are not subjected to pressure or to any action which would tend to confine any moisture or air which may be in the material or in the pit holes or crevices thereof or pocketed between the members of the closure, but on the contrary, the assembled parts are left entirely free for the escape of any moisture or for the escape of the air in expanding. The advantages of this mode of procedure and the means for carrying out the same will be set forth hereinafter.

I aim among other things to provide a construction for the uniting of the assembled members of the closure which may be added to existing forms of assembling machines, occupying no more floor space than is necessary to accommodate the existing form of machine. I have sought also to provide a compact arrangement, but at the same time one in which the heating action on the members of any one closure may be continued a sufficiently long time to thoroughly soften the binding material and to drive out any moisture or air in the material or between the members which might interfere with the firm uniting of the parts.

The invention consists in the features, combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings,—Figure 1 is a front view of a machine embodying my invention. Fig. 2 is a plan view of the heating table or steam plate showing also in section the spiral arranged above the plate for controlling the movement of the closures thereover and further, showing the chill ring surrounding the heating plate or steam table upon which the closures, together with their contents, are subjected to compression while being cooled. Fig. 3 is a sectional view through the heating table or steam plate together with the chill ring and compressing device with the parts associated with the elements named. Fig. 4 is a plan view of a portion of the heating plate and table with part of the chill ring also shown. Fig. 5 is a plan view of the housing for the plungers with the cam carried thereby illustrated in dotted lines. Fig. 6 is a sectional detail view of the housing.

The invention is shown in connection with the type of apparatus for making composite closures such as is disclosed in Letters Patent of the United States, granted to me August 29, 1905, #798549. In said apparatus the metallic caps, the collets of paraffin paper and the cork disks are assembled and are subjected to the action of suitable die mechanism which presses the component parts intimately together, compressing the sealing disk and mechanically uniting the parts by slightly contracting the vertical wall of the metallic cap or crown or by slightly reducing the diameter of the crown so as to cause it to grip and hold the cork or sealing disk in place therein. In the machine described in the said patent, after the parts have been assembled and united mechanically, as just described, they are discharged from the apparatus, but my present improvement contemplates uniting the metallic cap with its compressible contents or packing by fusing the interposed material, such for instance as the collet described, and subjecting the parts to pressure while cooling and while the binding or sealing material is hardening.

It is thought to be unnecessary to describe the assembling mechanism and the die mechanism as these parts are fully disclosed

in the patent referred to. After leaving the die mechanism the composite closure is discharged into a chute 1, Fig. 1, which directs the closure onto a heating table or steam plate 2. The cap as discharged upon this table is in inverted position resting with what is actually its top side on the table.

The heating table or steam plate is rotated, as will be hereinafter described, and it is provided with a series of ribs 3 of wedge shape, that is, increasing in width outwardly so as to provide a series of channels or grooves 4, between them which grooves are of equal width throughout their extent and are adapted to receive the closures or caps in inverted position to direct them to the outer edge of the table.

The closures as they are discharged from the end of the chute 1 enter between the ribs 3 and in position to be acted on by the downwardly projecting walls or ribs 5 of a plate 6, which is supported in fixed position as will be hereinafter described.

The walls 5 extend spirally and by acting upon the upturned flanges of the closure as the same is carried around by the movement of the heating plate, they cause the closures to move radially outward through the grooves or channels 4. During this outward movement the closures are subjected to heat from the heating table which being transmitted through the metal of the cap, directly in contact with the heating table, causes the binding and protecting material which is interposed between the compressible packing of cork or other material and the cap to be fused for the purpose of uniting the compressible packing with the cap and for other purposes as fully set forth in the Letters Patent of the United States #792284, granted June 13, 1905, to William Painter.

Surrounding the steam plate or heating table and moving therewith is arranged a chill ring $2^{\times}$, which is ribbed and grooved to form continuations of the ribs and grooves of the steam or heating table, the said chill ring being secured to the heating table by screws 7, Fig. 3, with asbestos packing 8 interposed to prevent the transmission of heat to the chill ring. This ring is subjected to cooling influences, as will be hereinafter described, and it is provided with a series of depressions 9, one in each of the grooves $4^{\times}$ which form continuations of the groove 4 of the heating table. These depressions are adapted to receive the closures and form a centering recess for the same to aid in holding the closure in place during the cooling of the parts and while they are subjected to pressure.

It will be seen that the closures as they traverse the heating table are free, not being subjected to pressure, and they follow each other through the grooves 4 closely, and during this time they are subjected to the heat from the heating table for which the spiral plate acts as a cover and serves to form, in connection with the surface of the heating table, a chamber in which the closures are subjected to the heat while free from pressure.

The spiral of the plate 6 continues to act on the closures until they are discharged at the point *a* Fig. 2 onto the chill ring, the spiral at this point having an abrupt outward bend in its walls and the depending wall having also a concentric portion 10, just beyond the point *a*, which by acting on the closure will move it into the depression 9. As soon as this takes place, and of course as soon as the metal cap of the closure contacts with the chill ring, the parts of the closure are subjected to the cooling action of the said chill ring, and while cooling is subjected to pressure. The pressure is exerted through a plunger, one for each of the depressions in the chill ring, said plungers 11 being guided in a casting of ring shape 12, having an inturned lower flange 13, and an inturned upper flange 14 through which flanges the plunger 11 is guided.

Each plunger is pressed normally downwardly by a spring 15 bearing upon the ring casting at the upper end and upon a collar 16 on the plunger at the lower end. Each plunger has an extension 17, carrying a roller 18, which is adapted to coöperate with a cam 19 supported on a casting or ring 20, which is fixed to brackets 21, which brackets are supported from a stationary portion of the machine as will be hereinafter described.

The plunger carrying ring rotates with the steaming or heating table and the chill ring, being connected to the said ring by screws 22. The said plunger carrying ring or casting has a circular row of teeth 23 on its inner side meshing with a gear wheel 24 which is driven as will be hereinafter set forth.

The stationary cam 19 for controlling the vertical position of the plungers and their action on the closure extends only a short way about the circular casting 20 to which it is attached, and in the revolution of the steaming table, chill ring and plunger-carrying ring the plungers are raised just before they reach the point at which the closures are discharged from the spiral and from the heating table onto the chill ring, and this permits the proper positioning of the closure beneath the elevated plunger, and when this has taken place the roller of the elevated plunger runs off from the stationary cam 19, thus allowing the plunger to fall and engage the packing placing the same together with the other parts of the closure under compression, and in this condition, and while in contact with the chill ring, the closure makes very nearly a full revolution, about the axis of the machine until the roller on the plunger again arrives

at the stationary cam 19 when the said plunger is again lifted and the closure with its parts united by the fusible material which has now been cooled and hardened, is discharged from the chill ring by coming in contact with the outwardly inclined edge 24 of the wing 25 forming a termination of the outer wall of the spiral, this wing with its inclined edge being located close to the point at which the closure is thrust upon the chill ring from the spiral so that nearly a complete revolution of the machine takes place during the time the closure is subjected to the cooling influences of the chill ring and to the pressure acting directly upon the compressible packing so that an effective hardening of the fusible substance will take place before the packing is released from its compressed condition, this being important in order to prevent the packing in resuming its uncompressed condition, from destroying the binding effect of the interposed fusible material.

Having described the general features and operation of the invention, certain details of construction and arrangement will be necessary to be disclosed in order to fully understand the same.

As will be seen from Fig. 1, the heating, cooling and pressure mechanism is arranged beneath the assembling and die mechanism of the machine above referred to and axially in relation thereto occupying no more floor space than is necessary for the said machine.

The heating table turns in a central bearing 26 of a frame or plate 27 which is supported by legs 28 from the floor. The heating table is formed in two parts joined by screws at 29 with interposed packing, the two parts forming a chamber into which steam is admitted by a pipe 30. The exhaust takes place through the hub 31 of the steam table and a pipe 32 extending into the said hub about the steam inlet pipe 30 from a casting 33 suitably supported on the floor and through which also the steam pipe enters. From this casting a discharge opening 35 directs the exhaust steam to any suitable point. A stuffing box is provided at 34 of any suitable construction.

The plate carrying the spiral and constituting a part of the heating chamber for the closures is provided with a covering of asbestos, as at 36, forming between itself and the plate an air space 37. This construction prevents the radiation of heat and asbestos may be applied at all necessary points to confine the heat to the heating chamber. It is also shown at 38 as a lining for the stationary frame or plate 27. This plate or frame has formed therewith an annular channeled portion made up of the inner and outer flanges 39, 40. In this channel is placed means for cooling the chill ring consisting of a pipe 41 for conveying the cooling fluid, such as water or compressed air, the said pipe having jet openings 42 to direct the fluid to the underside of the chill ring at or near the center, on each side of which the chill ring is provided with depending flanges 43 to better control the cooling fluid and cause it to act more thoroughly upon the chill ring. The cooling pipe is carried in a trough 44 held within the annular channel of the plate or frame 27, the said trough receiving the fluid after acting upon the chill ring and conveying it to a suitable discharge, as for instance, the outlet pipe 45, Fig. 1. The annular channel has also located therein a ball bearing arrangement for the steam table. This consists of a ring 46 having a series of openings for anti-friction balls 47, which balls are borne upon by a ring 48 attached by screws 48× to the steam table and said balls rest upon a ring 49 having a raceway therein for the balls, which ring is held adjustably by a screw 50 in a groove 51 of the plate or frame 27.

As before stated, the ring or casting for supporting the cam 19 and which also serves to house the rollers and plungers, is supported upon the brackets 21, and these brackets are secured by screws 52 to the outer side of the stationary plate or frame 27. These brackets 21 also have extensions 53 reaching down within the housing or ring 20, and by means of bolts 54 they support the spiral plate, before mentioned, in a stationary manner.

The housing 20 carrying the cam 19 for operating the plungers 11 is attached to the brackets 21 by the screws 59, 60. Anti-friction bearings are provided at the upper part of the rotating ring or casting 12 consisting of the anti-friction rollers 55 and 56, the latter of which turns on a part of the screw 57.

The connections for driving the heating table comprise besides the circular rack 23 and gear 24, the shaft 63, upon which said gear 24 is fixed, said shaft having its bearings in a bracket 64 secured to the main frame 65 of the table, the gear 66 on said shaft meshing with a pinion 67 on the shaft 68, which forms a part of the transmitting connection of the assembling machine, carrying thereon the bevel gears 69 and 70 meshing respectively with the bevel gears 71, 72, whereby the feed plate 73 of the assembling machine is driven from the main shaft 74 through the gearing 75, 76.

From the above it will be seen that the assembled parts of the closure are subjected to heat while in the condition in which they leave the dies of the assembling machine. In this condition the packing while frictionally held by the walls of the cap, is free from pressure or from contact with any device which might act to prevent the escape of the air or moisture from the crevices or from the

body of the material itself within the cap. It is desirable to allow the air and moisture, if there be any, to escape freely before the parts are subjected to pressure, for if the pressure takes place before or simultaneously with the heating, any air contained in the pit holes or crevices of the packing or between the members of the closure or any moisture present on or about the members, may, by expanding, tend to separate the parts and prevent them from uniting perfectly under continued pressure. Further, it will be observed that as a heating medium, I use steam and this is applied to the table over whose imperforate surface the crowns pass. There is thus no direct contact of the heating medium with the crowns and no damage results thereto. During the application of the pressure the cap rests firmly upon the chill ring and the plunger engages the packing without requiring or causing any change in the shape of the flange of the cap, said plunger being free to rise from the cap at any time.

The heating table occupies the space within the standards or supporting legs of the apparatus and by reason of the spiral course over which the closures are made to pass, the heat continues to act on the closures for a long time so as to thoroughly soften the interposed binding material and prepare the parts for the cooling and pressing action.

It will be understood that the fundamental principle underlying the organization of elements above described may be embodied in apparatus of different form from that disclosed herein without departing from the broad scope of my invention.

The rotary table serves both as a heating means and also as a means for imparting movement to the closures, which movement is controlled by the spiral so that they traverse the table radially outward.

The assembling mechanism may be the same as that disclosed in the patent above referred to or any other desired form may be employed.

I do not limit myself to the precise form of the elements herein described.

I claim:—

1. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for heating the assembled members of the closures while free to allow the expanding air to escape, and means for pressing the parts together while cooling, substantially as described.

2. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for heating the assembled members of the closures while free to allow the expanding air to escape, means for cooling the parts, and means for pressing the parts together while cooling, substantially as described.

3. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for heating the assembled members of the closures while free from pressure to allow the expanding air to escape, and means for pressing the parts together while cooling, substantially as described.

4. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, a plunger, a support on which the closure rests and between which and the plunger the closure is pressed, and means for heating the assembled parts of the closure for fusing the interposed material before the compression takes place said compression taking place during the cooling of the parts and the hardening of the interposed binding material, substantially as described.

5. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for supporting the closure in inverted position, means engaging the packing and the cap or metallic member to press them towards each other, and means for applying heat to fuse the said interposed binding material before the inverted closure is subjected to pressure and while it is free to allow the escape of the expanding air, substantially as described.

6. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for supporting the closure in inverted position, means engaging the packing and the cap or metallic member to press them towards each other, means for cooling the closure while subjected to pressure, and means for applying heat to fuse the said interposed binding material before the inverted closure is subjected to pressure and while it is free to allow the escape of the expanding air, substantially as described.

7. In an organization of the class described, means for pressing the parts of the closures together and means for heating the closures with their interposed fusible binding material, said heating means serving to move the closures to the pressing means, substantially as described.

8. In combination in apparatus of the character described, means for heating the closures with their interposed binding mate-

rial comprising a table, means for moving the closures outwardly over the said table while being heated, and means for receiving the outwardly moving closures and subjecting them to pressure to unite the parts, substantially as described.

9. In combination in apparatus of the character described, means for heating the closures with their interposed binding material comprising a table, means for moving the closures radially outwardly over the said table while being heated, and means for receiving the outwardly moving closures and subjecting them to pressure to unite the parts, substantially as described.

10. In combination in apparatus of the character described, means for heating the closures with their interposed binding material comprising a table, means for rotating said table, means for effecting the movement of the closures outwardly over the said table while being heated, and means for receiving the outwardly moving closures and subjecting them to pressure to unite the parts, substantially as described.

11. In combination, in apparatus of the character described, a table for supporting the closures, a guiding device over the table, one of said parts being movable to cause an outward movement of the closures in respect to the table, means for applying heat and means for receiving the closures when moved outward adapted to press the parts of the closure together, substantially as described.

12. In combination in an apparatus of the class described, a rotary table for supporting the closures, means over the said table for effecting in connection with the movement of the said table an outward passage of the closures over the table, means for applying heat, and means at the outer edge of the table for receiving and pressing the parts of the closures together, substantially as described.

13. In combination in an apparatus of the class described, a rotary table for supporting the closures, means over the said table for effecting in connection with the movement of the said table an outward passage of the closures over the table, means for applying heat and means adjacent the outer edge of the table for receiving and pressing the parts of the closures together, said pressing means revolving in unison with the table, substantially as described.

14. In combination in an apparatus of the class described, a rotary table for supporting the closures, means over the said table for effecting in connection with the movement of the said table an outward passage of the closures over the table, means for applying heat and means adjacent the outer edge of the table for receiving and pressing the parts of the closures together, said pressing means revolving in unison with the table and consisting of a circular series of plungers, substantially as described.

15. In apparatus of the class described, means for pressing the parts of the closures together, an imperforate table on which the closures rest, and means for applying heat to the said table, said pressing means being adapted to receive the closures from the said plate, substantially as described.

16. In apparatus of the class described, means for pressing the parts of the closures together, an imperforate table upon which the closures rest, means for applying heat to said table, and means for causing the closures to move over the said table outwardly to the pressing means, substantially as described.

17. In combination, in apparatus of the class described, means for pressing the parts of the closure together, a table having outwardly extending ways to direct the closures to the pressing means, means for causing the closures to pass outwardly through said ways, and means for applying heat, substantially as described.

18. In combination in apparatus of the class described, means for pressing the parts of the closure together, a table upon which the closures rest in inverted position, means for applying heat and a plate over the table forming between itself and the table a heating chamber, said pressing means receiving the closures from the table, substantially as described.

19. In combination in apparatus of the class described, means for pressing the parts of the closure together, a table upon which the closures rest in inverted position, means for applying heat and a plate over the table forming between itself and the table a heating chamber, and a spiral guide depending from said plate to engage the closures, said pressing means receiving the closures from the table, substantially as described.

20. In combination in apparatus of the class described, means for pressing the parts of the closures together, an imperforate table upon which the closures rest, a steam chamber beneath the said table for heating the same, said pressing means receiving the closures from said table, substantially as described.

21. In combination in apparatus of the class described, a rotary table having outwardly extending grooves or ways, a guide for causing the movement of the closures outwardly, and a series of plungers revolving in unison with the rotary table and receiving the closures from the rotary table, substantially as described.

22. In combination in apparatus of the class described, a series of plungers, means for previously heating and then delivering

the closures thereto, and means for positively discharging the closures from in front of the plungers, substantially as described.

23. In apparatus of the class described, a revolving series of plungers, means for previously heating and then delivering the closures thereto and means for discharging the closures from beneath the plungers at one point, substantially as described.

24. In apparatus of the class described, a revolving series of plungers, means for previously heating and then delivering the closures thereto and means for discharging the closures from beneath the plungers at one point, said means consisting of the incline in the path of movement of the closures, substantially as described.

25. In combination in apparatus of the class described, means for heating the closures while free from pressure, chilling and pressing means, and means whereby the closures are delivered from the heating means to the chilling and pressing means, substantially as described.

26. In combination in apparatus of the class described, means for heating the closures while free from pressure, chilling and pressing means for receiving the heated closures from the heating means, said pressing means acting to press the parts of the closure together between itself and the chilling means, substantially as described.

27. In combination in apparatus of the class described, means for heating the closures while free from pressure, a chill plate and plunger for receiving the heated closures for cooling and uniting the parts thereof, said plunger pressing the closures between itself and the chill plate, substantially as described.

28. In combination in apparatus of the class described, a table, means for applying heat, a chill ring surrounding the table to receive the heated closures therefrom and means for pressing the closures to unite the parts thereof while cooling on the chill ring, substantially as described.

29. In combination, in apparatus of the class described, a plate having outwardly extending ways or grooves, a chill ring surrounding the plate and having ways forming continuations of those of the heating plate, and plungers for pressing the closures while on the chill ring to unite the parts while cooling and during the hardening of the binding material, substantially as described.

30. In combination in apparatus of the class described, a rotary table, means for applying heat, means for causing the closures to move over the surface of said table outwardly, a chill ring surrounding and revolving with the said table and receiving the heated closures therefrom, and means for pressing the closures to unite the parts thereof while cooling upon the chill ring, substantially as described.

31. In combination in apparatus of the class described, a rotary table, a concentric chill ring, said table and ring having their surfaces in the same plane, means for delivering the closures from the table onto the chill ring, and means for pressing the closures on said chill ring, substantially as described.

32. In combination in apparatus of the class described, a rotary table, a concentric chill ring, means below the table and ring for heating and chilling the same respectively, means whereby the closures are delivered from the heated table to the chill ring and means for pressing the closures while on the chill ring to unite the parts thereof, substantially as described.

33. In combination in apparatus of the class described, means for heating the closures while free from pressure, a chill support having a depression to receive the closures, means for moving the closures into said depressions, and means for pressing the closures while in said depressions, substantially as described.

34. In combination in apparatus of the class described, a heating table, a chill ring surrounding the same, a series of plungers over the chill ring, means over the table for moving the closures outwardly onto the chill ring and for centering the same beneath the plungers, substantially as described.

35. In combination in apparatus of the class described, a heating table, a chill ring surrounding the same, a series of plungers over the chill ring, means over the table for moving the closures outwardly onto the chill ring and for centering the same beneath the plungers, said heating table, chill ring and series of plungers having revolving movement and means at one point for discharging the closure from the chill ring after being pressed to unite the parts of said closure, substantially as described.

36. In combination in apparatus of the class described, a rotary heating table, a chill ring surrounding the same and rotating therewith, a series of plungers rotating with the chill ring, means for delivering the closures from the heating table onto the chill ring, means for discharging the closures after being pressed to unite their parts, said discharge taking place at a point adjacent the delivery point of the closures onto the chill ring, means for lifting the plungers at the discharge point, and means for lowering them at the delivery point and holding them lowered during the greater portion of the revolution of the parts, substantially as described.

37. In combination with the assembling machine, apparatus for uniting the parts of the closures and means for directing the

closures from the assembling machine to the said uniting apparatus, said assembling machine being superimposed in relation to the uniting apparatus, substantially as described.

38. In combination in apparatus of the class described, the table for supporting the closures, heating means, a spiral guide over said table and means for receiving the closures from the said table to press them and unite the parts, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

WILLIAM H. WHEELER.

Witnesses:

HOWARD D. ADAMS,

JOHN BLACK.

1227

No. 887,838. PATENTED MAY 19, 1908.

W. PAINTER.

MACHINE FOR MAKING CLOSURES FOR BOTTLES AND THE LIKE.

APPLICATION FILED MAY 24, 1905. RENEWED OCT. 3, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

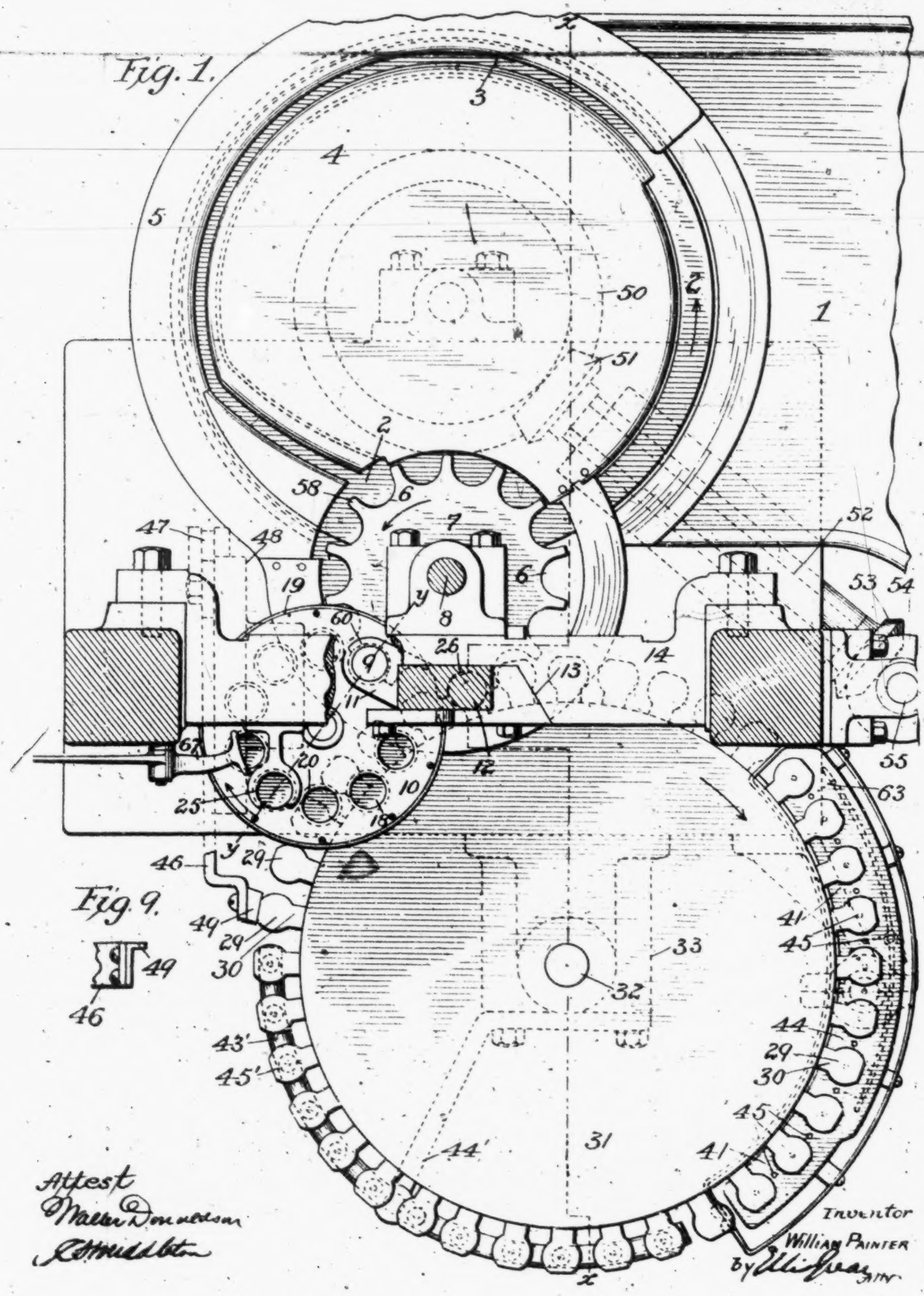


Fig. 9.

Attest
Walter Donaldson
R. Middleton

Inventor
William Painter
by Ellis Spear Jr.

BLANK

PAGE

1228

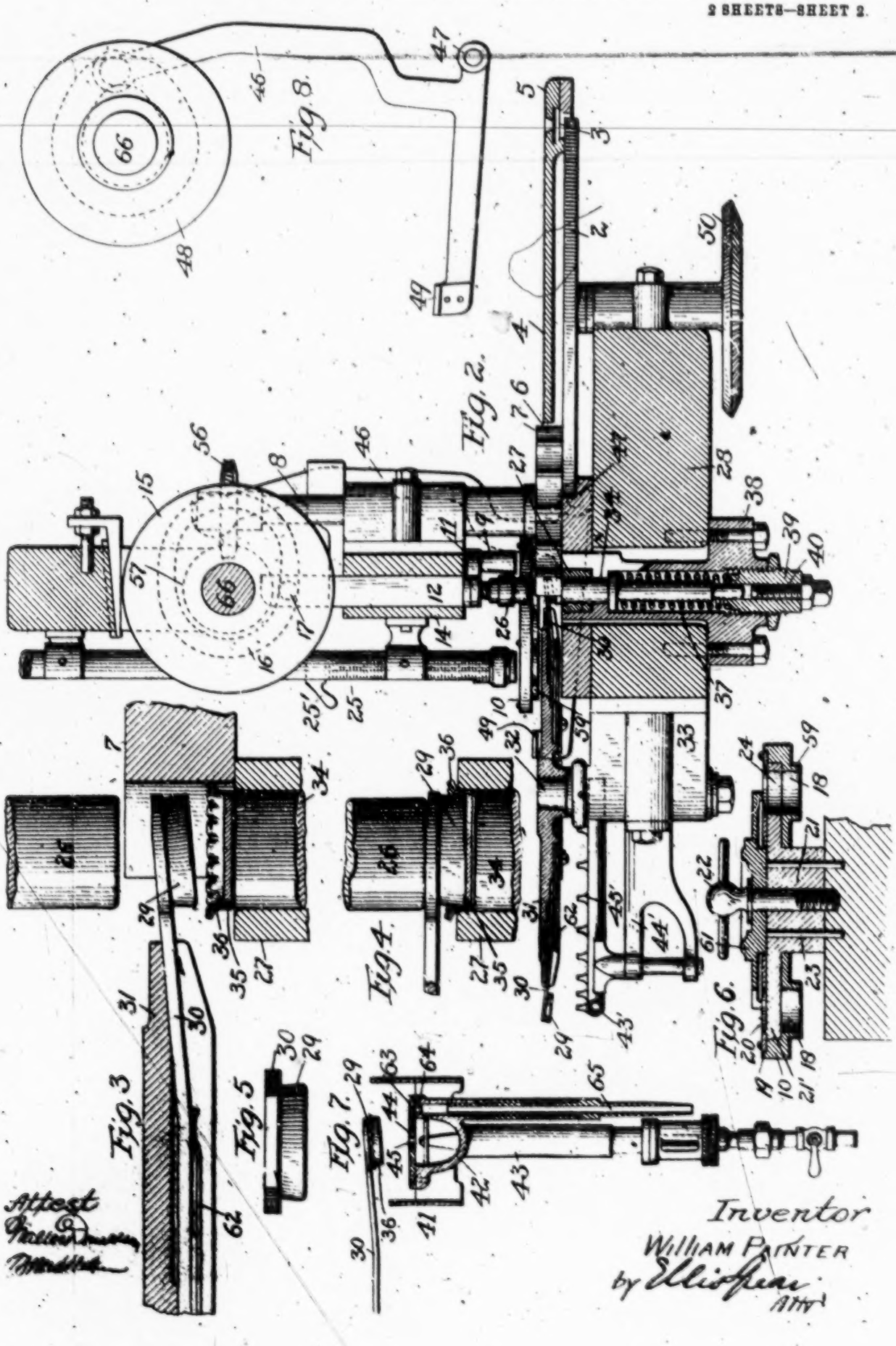
No. 887,838. PATENTED MAY 19, 1908.

W. PAINTER.

MACHINE FOR MAKING CLOSURES FOR BOTTLES AND THE LIKE.

APPLICATION FILED MAY 24, 1905. RENEWED, OCT. 3, 1907.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK AND SEAL COMPANY OF BALTIMORE CITY, OF BALTIMORE, MARYLAND.

MACHINE FOR MAKING CLOSURES FOR BOTTLES AND THE LIKE.

No. 887,838. Specification of Letters Patent. Patented May 19, 1908.

Application filed May 24, 1905, Serial No. 262,048. Renewed October 3, 1907. Serial No. 395,758.

To all whom it may concern:

Be it known that I, WILLIAM PAINTER, a citizen of the United States, residing at Baltimore, Maryland, have invented certain new and useful Improvements in Machines for Making Closures for Bottles and the Like, of which the following is a specification.

In certain applications for patent filed by me June 6, 1902, (Serial No. 110,535) and September 29, 1902, (Serial No. 125,180) I disclosed certain novel methods or processes of manufacturing bottle closures, wherein a special feature involves the interposition of a suitable fusible protecting amd binding medium between a suitable metallic cap and a suitable sealing gasket or packing; then properly heating the cap, gasket and said medium, and meantime subjecting the whole to appropriate pressure, and while still under such pressure, cooling the completed closure.

My present application discloses certain novel mechanism, both in detail and in organization, as devised by me for the manufacture of bottle closures in harmony with my said novel method, and with special view to economically producing closures involving sundry novel characteristics of substantial value. A reliably firm union of the metal with the packing is assured, which contributes to substantial economy, because the packing, whether in the form of rings or disks, can be not only thinner, but of less diameter than heretofore, and such open pits or holes as are common to cork are well closed next to the metal, and the cork itself, although quite well condensed has highly effective resiliency. Liquid can seldom if ever reach back of the packing when the closure is in use on a bottle, and the central portion of a disk packing is so firmly held as to prevent undue inward bulging.

After a detailed description of my present invention in connection with the accompanying two sheets of drawings, the several features deemed novel will be duly specified in the several clauses of claim hereunto annexed, it being understood that the machine here illustrated is adapted to operate in connection with closures of the well known "Crown cork system."

Referring to the drawings, Figure 1 illustrates, mainly in plan view but partially in section an organization embodying my present invention. Fig. 2 is a vertical section of the parts shown in Fig. 1 on the irregular line *x*—*x* (but on a somewhat reduced scale) and also certain overlying parts, some in side or edge view, and others in section. Figs. 3 and 4, on an enlarged scale, and in two successive positions, illustrate an appropriate pressure block with a plunger and a die, which coöperate in effecting a temporary mechanical union of each presser block with a cap and its packing, and also the desired compression of the contents of the cap. Fig. 5 is a side view of a presser block and the end of the arm on which it is carried. Fig. 6, in section on line *y*—*y* Fig. 1, illustrates a cork carrier and its hub or journal, an underlying portion of the frame of the machine, and an overlying plate or cover, not shown in Figs. 1 or 2. Fig. 7 illustrates in elevation and vertical cross section a heating apparatus, and also in side view an overlying presser block holding a filled closure in proper position to be heated. Fig. 8 illustrates in side view, a cam wheel and a bell crank lever carrying a clearer for detaching finished closures from the presser blocks. Fig. 9 is a detail view of the clearer for releasing caps from the presser blocks.

Believing it will be conducive to a prompt comprehension, to first indicate in a general way the salient parts of the machine and its mode of operation, I will state, specially referring to Fig. 1, that a fixed table 1 receives metal caps already provided with a suitable interior binding medium; an attendant arranges them open side up and slides them upon an exposed portion of a continuously revolving feed table 2, partially covered, as at 4 and 5, so as to afford near the periphery of the table a curved race-way or channel 3. The caps are frictionally carried through this channel until they reach its end at a circular space occupied by an intermittently operated star wheel 7, overlying a portion of the feed wheel, and having between its arms, semi-circular spaces or pockets 6 adapted to receive the caps one by one from the channel 3 and carry them in a circular path beneath an intermittently operated cork wheel or carrier 10. This carrier receives the packing from above regardless of its form, (*i. e.*, sometimes ring shaped, but generally in disk form,) at 25 and delivers the packing at 9, where a cork plunger forces it downward into an underlying cap still within the custody of the star wheel 7, which then carries the filled caps one by one in a circular path beneath a

vertical presser block plunger 26 to, over, or into, a cooperating stationary die. An intermittingly operated circular table, here termed a "timing" table, carries at its periphery a series of equidistant circular presser blocks 29 on the under sides of spring controlled radial arms 30, so that when a cap with its packing stops at the die and plunger 26, the latter will force the presser block into the cap, upon the packing, and carry the cap into the die until appropriate pressure has been assured. The die being of slightly less diameter than the caps, the flange of each is peripherally reduced and made to tightly engage with a presser block, and when released from the die, it is carried by the presser block with the binding medium and packing more or less heavily compressed, because of the firm (but temporary) mechanical union of the cap and presser block. The timing table by its intermittent movement first presents each presser block and the closure thereon to a heating apparatus at 41, for fusing the binding medium, and from thence, to the cooling apparatus at 43', and after having been properly cooled and the binding medium hardened, the finished closures or "crowns" are automatically released from the presser blocks by a clearer at 49.

Now as to a more specific description, it will be seen in Figs. 1 and 2 that the feed table 1 is continuously rotated by way of a vertical shaft 55, bevel gears 54 and 53, a horizontal shaft 52, bevel gear 51, and an overlying horizontal bevel gear 50 on a spindle pendent from the table and carried in a hanger at a portion 47 of the frame. The central cover 4 of the table, and the curved cover plate 5 with the intervening channel 3 have already been referred to. For working upon plain "crowns" the surface of the table may be of metal, hard paper, or wood, but for decorated crowns it will sometimes be desirable to have a softer covering, such as leather, to avoid scratching the decorations.

The star wheel 7 has multiple functions, and hence it is difficult to specially designate it in harmony with its duties. It not only takes unfilled caps one by one from the feed table and carries them to the cork feeder 10, but it also operates with its teeth 58 as a sprocket or gear in driving said feeder, step by step, and still further in like manner with its pockets 6 delivers filled caps to the die, and drives the timing table. The star wheel shaft 8 is intermittently driven by its worm gear 56, actuated from the adjacent continuously driven shaft 66, by means of a cam 57 having a spline or worm which operatively engages with the worm gear long enough to impart required movement to the star wheel, said spline being so shaped, (*i. e.*, straight and curved,) as to afford the required rest during the remainder of its own rotation in a manner well known. These parts are similar to those described in Letters Patent of the United States granted to Wm. H. Wheeler 798549 August 29, 1905.

The cork wheel, or feeder 10, shown in section in Fig. 6, is horizontally journaled on top of a circular bearing plate 21', having a hub or post 21 mounted upon and doweled, as at 23, to a portion of the frame of the machine and held down by a clamp screw 22 which also controls a cover 61 which is not indicated in Figs. 1 and 2, and may or may not be used. The cork wheel is composed of a heavy bottom plate 19 provided with a rabbeted flange, and an attached thin top plate which rests upon the bearing plate 21'. This top plate is provided with an annular series of circular holes 20, which register with corresponding holes 18 in the bottom plate 19 whenever in the course of rotation they register with a similar single hole 24 in the bearing plate 21, at which point the cork plunger 9 performs its duty. Except at this one point, the bearing plate serves as the bottom for all the holes 20, and enables them to serve as pockets for packing disks delivered thereto from the overlying cork tube 25, Fig. 2. This cork tube is vertically slitted at one side and is provided with a weight 25' having a projected finger piece for enabling it to be lifted from the tube when a fresh supply of cork is needed, said weight assuring a proper delivery of corks from the bottom of the pile in the tube, one by one, into each pocket 20 as it passes below.

Adjacent to the tube 25 there is a hinged finger 67 connected with an electric signal (not shown) for announcing any failure of delivery of cork to a pocket, but this constitutes no part of my present invention. At each hole in the bottom plate, there is a pendent boss or flange 59, serving as a gear tooth for engagement by the star wheel as indicated at 60, Fig. 1.

The conveyer or timing table 31 is rotated step by step on its pintle 32 on a hanger 33 and is provided with a series of radial arms 30, strongly hinged, projecting from its periphery, and each normally maintained in an elevated inclined position by a spring 62. Each of said arms carries below its outer end a pendent presser block 29, frusto-conical in form, larger at its face than at the arm, and of appropriate size to properly enter a filled cap and bear upon the cork disk or packing and to be itself firmly engaged by the flange of the cap after the packing has been compressed, thus enabling the presser block to maintain desired pressure on the packing until the finished closure is finally released therefrom. As already indicated the presser block arms 30 also serve as teeth engaged by the star wheel in actuating the timing table.

The cork plunger 9 is mounted on a lateral arm 11 projecting from beneath a slide 12 (in guide bearing 13 on cross bar 14), which

also carries the presser block plunger 26, all simultaneously vertically reciprocated by means of a stud 17 in a cam groove 16 in a cam wheel 15 on the shaft 66, said groove being so shaped as to cause the plungers to operate when the cork wheel, the star wheel and the timing table are at rest.

The presser block plunger 26 coöperates with the underlying die 27 (on bed plate 28) containing a die block 34 which serves as a slidable bottom for the die, and has a pendent spindle 37 within a spiral spring having its thrust bearing at the top against a collar, and at the bottom on a tubular screw-threaded support or plug 39 (in a hanger 38,) which contains the lower end of the spindle and also an underlying stop screw 40.

It will now be obvious that the organization of the presser block plunger, the presser blocks with their arms, and the die, is such, that when a filled cap has been delivered to the die, as shown in Fig. 3 beneath a presser block, the plunger will descend, force the block into the cap, and drive it into the die and firmly lock the cap 36 to the block with the packing properly compressed, and that the extent of condensation can be predetermined by an adjustment of the stop screw upon which the block spindle abuts.

The spring in yielding, assures a gradual application of pressure, and in some cases it may be relied upon for limitation, but its prime function is to enable the die block to act as an ejector for promptly releasing a cap and presser block from the die, and it being adjustable its inevitable weakening can be compensated. The extent to which the cap may be forced into the die is also positively controlled by the stop screw 40, thus enabling variations as to the contraction of the flange of a cap and also as to the tenacity of its union with a presser block.

As to the heating apparatus 41, it is to be understood that it may be widely varied without departure from the main feature of my invention. The heat may be derived from electricity, steam, or combustion either within or flaming from the heater; but however heated the organization of the heater with the timing table should be such as to appropriately heat the caps on the loaded presser blocks during their progressive movement, and in each case appropriate to special conditions involved; as for instance, some packing and some form of binding medium, and some materials or compounds thereof, will require more heat than others, or less heat with varied extent of exposure, and plain crowns may be safely exposed to heating conditions which might be ruinous to decorated crowns.

As here shown, specially in Fig. 7, the heater 41 consists of a horizontal flat topped chamber 42 supplied with gas and air (on the Bunsen plan) by way of the vertical pipe 43 provided with a suitable sleeve for controlling the air mixture, and with a suitable cock for graduating the supply of gas or cutting it off. The flat burner top 44 has suitable jet apertures 45. A pilot burner (or ready lighter) 65 with its jets at 63 receives gaseous mixture from a small chamber 64 concentric with the main burner. For maintaining a proper control of the heat and the adjacent air currents induced thereby, the burner has adjacent vertical side walls which, while permitting more or less air to freely rise from below the burner, also guard against undue lateral disturbance as from drafts of air.

As to the cooling operation in the organization, it is to be understood that under some circumstances and with some materials requiring but little heat, it will only be necessary to provide for the transit of the heated closures beyond the heater for a long enough time to enable them to be cooled by the atmosphere at normal temperature before they are released from the presser blocks. For meeting all requirements however, an artificial cooling operation is important. The packing is quite heavily compressed, and air largely excluded from the cap, and hence with a heavy solid binding medium to be fused or softened, or one containing volatile matter, considerable heat would have been needed, and if such heat were not thereafter promptly checked or reduced, the packing or said medium or both, might be injured, and should the release of the closures from the presser blocks precede a proper hardening of the binding factor, and a proper cooling of the packing, the latter in expanding from a condensed condition might largely derange the union of metal and packing. As here shown, the cooler consists of a curved pipe 43′ on an arm 44′ and provided with vertical jet tubes 45′ in the path traversed by the crown laden presser blocks. Air, preferably under considerable pressure, is delivered to the cooler, so that on emerging in small jets it will promptly expand and induce a low temperature while directly impinging against the crowns when at rest, as well as during their movement.

In view of the falling tendency of cold air, it will be found sometimes advisable to provide an additional set of cooling jets located above or at one side of the path for delivering air inwardly or downwardly upon the crowns and blocks, which latter are liable to get unduly heated. To guard against such undue heating, the presser blocks may be provided with cores of wood, or other good non conductor of heat, the rims being of hard metal sufficiently smooth and strong to withstand the heavy grasp of the cap flanges, and admit of ready release.

The releasing of the caps from the presser blocks may be variously effected without de-

parture from my invention. The clearer 49, as indicated in Figs. 8 and 9, is intermittingly actuated from the horizontal shaft 66 by a cam wheel 48, and a bell crank lever 46 pivoted at 47, the lever at its upper end having a roller stud within an appropriate cam groove, (shown in dotted lines,) assuring the proper vertical reciprocation of the clearer, which overlies the edge of a crown on any presser block standing at rest at the point of clearance.

Having thus described my invention I claim,

1. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for engaging the packing to press the same against the metallic member with the fusible material interposed, and means for subjecting said parts to a change in temperature, said change in temperature being maintained while the said packing is maintained under compression, substantially as described.

2. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing with fusible material interposed, heating means and means for engaging the packing to hold it under compression while the closure is cooling, substantially as described.

3. In an organization for uniting the compressible packing with the metal caps of bottle closures, means for heating the metal caps with the contained packing and interposed fusible material, and means for subjecting the packing to compression, and during said compression subjecting the metal cap to a cooling action, substantially as described.

4. In an organization for making bottle closures of the cap variety, the combination, substantially as hereinbefore described, of means for automatically assembling the metal caps and packing, means for heating the caps, and means for subjecting the packing to pressure to hold it in proper position against the cap and the interposed fusible material while cooling, substantially as described.

5. In an organization for making bottle closures of the cap variety, the construction substantially as hereindescribed, consisting in means for automatically assembling the caps, the packing and the interposed material, means for heating the parts to fuse the binding material, and means for holding the packing under pressure within the cap while the parts are cooling and the binding material is hardening, substantially as described.

6. In combination, means for heating the assembled closure members and means for pressing the said members together and holding the said members under this pressure and while cooling, the said means of compression being movable to convey the closure while its members are maintained under pressure, substantially as described.

7. In an organization for making bottle closures of the cap variety, the combination substantially as hereinbefore described, of means for heating caps containing a compressible packing and an interposed binding medium, means for maintaining pressure thereon during the heating operation, said means entering the cap and engaging the compressible packing, and means for automatically controlling the caps during and after the heating operation.

8. In an organization of the character indicated, the combination substantially as hereinbefore described, of means for heating caps having compressible material therein, means for artificially cooling them, and means for maintaining the contents of the caps under compression during the heating and cooling operations.

9. In an organization for uniting the metallic member of a bottle or like closure with its packing, means for pressing the packing into said metallic member, and means for subjecting the said parts to heat while maintained under pressure, substantially as described.

10. In combination, means for pressing together the members of a bottle or like closure, means for first subjecting said members to heat while maintained under pressure and then to cooling influences while maintained under pressure, substantially as described.

11. In combination, means for pressing the members of a bottle or like closure together and for holding the said members under this pressure, means for heating the members while under said pressure, the said means for compression being movable to convey the closure while its members are maintained under pressure, substantially as described.

12. In combination, a heating apparatus, a conveyer having means for holding the members of a bottle closure together under pressure, said conveyer being arranged to carry the closure while its members are maintained under pressure to said heating apparatus and to carry the said members maintained under pressure away therefrom, substantially as described.

13. In combination, heating apparatus, a conveyer having means for holding the members of the closure together under pressure, said conveyer being arranged to carry the closure while its members are maintained under pressure to said heating apparatus and to carry the said members maintained under pressure away therefrom, and means for discharging the closure from the said conveyer, substantially as described.

14. In combination, a pressure plunger,

means for feeding the closures beneath the same to be pressed, and a movable pressure maintaining conveyer to carry the compressed closure from beneath the plunger while maintaining it under pressure, substantially as described.

15. In combination, a pressure plunger, means for feeding the closures beneath the same to be pressed, a conveying device movable beneath the plunger and a die for attaching the closures under pressure to said conveying device, substantially as described.

16. In combination, a pressure plunger, a conveying device provided with presser blocks arranged to move over the closure to be pressed and under the pressure plunger, and a die for crimping the flange of the closure to the presser blocks for attaching the same thereto and maintaining the members of the closure under pressure, substantially as described.

17. In combination, a pressure plunger, a conveying device movable beneath the same and over the closure to be pressed, said conveying device carrying the closure under pressure from beneath the pressure plunger, and a heating device to which the closure is conveyed while maintained under pressure, substantially as described.

18. In combination, a pressure plunger, a conveying device provided with frusto-conical presser blocks arranged to move beneath the pressure plunger and over the closures to be pressed and a die for crimping the flange of each closure on to a presser block, substantially as described.

19. In combination, a pressure plunger, a cooperating die having a spring controlled die block therein and a conveying device provided with a presser block, whereby said pressure block with a closure under pressure will be released from the die and carried away therefrom, substantially as described.

20. In combination, a pressure plunger, a star wheel having pockets or spaces between its arms for carrying crowns beneath the pressure plunger, a conveyer and presser blocks carried thereby to receive the crowns under pressure, the said conveyer being operated by the movements of the star wheel, substantially as described.

21. In combination, a pressure plunger, a star wheel, a conveyer having pressure maintaining means, arms on the conveyer for holding said pressure maintaining means, said arms meshing with the pockets of the star wheel, substantially as described.

22. In combination, a die on which the closures are placed, and pressure maintaining means on to which the closure is pressed by the action of the die, to be held under pressure, substantially as described.

23. In combination, a presser block for holding a crown closure with its packing disk under pressure, and means for placing the crown under pressure thereon.

24. In combination, a presser block for holding a crown with its packing disk under pressure, and means for placing the crown thereon under pressure, consisting of a plunger and a die, substantially as described.

25. In combination, a presser block for holding a crown with its packing disk under pressure, a die and a plunger, said plunger and presser block being movable towards and from the die, substantially as described.

26. In combination, a presser block having a peripheral surface adapted to enable a crown to be gripped thereon under pressure, and means for connecting the crown with the presser block.

27. In combination, a device for holding a crown with its packing disk under pressure, and means for placing the crown with its disk carried by said holding device and maintaining the contents of the crown under pressure while uniting them, substantially as described.

28. A machine for making closures for bottles and the like, comprising means for uniting the crowns with their disks and for holding them under pressure during that operation.

29. A machine for making closures for bottles and the like comprising means for uniting the crowns with their packing disks and for conveying and holding them under pressure during the uniting operation.

In testimony whereof, I affix my signature in presence of two witnesses.

WILLIAM PAINTER.

Witnesses:

HOWARD D. ADAMS,

WM. C. WOOD.

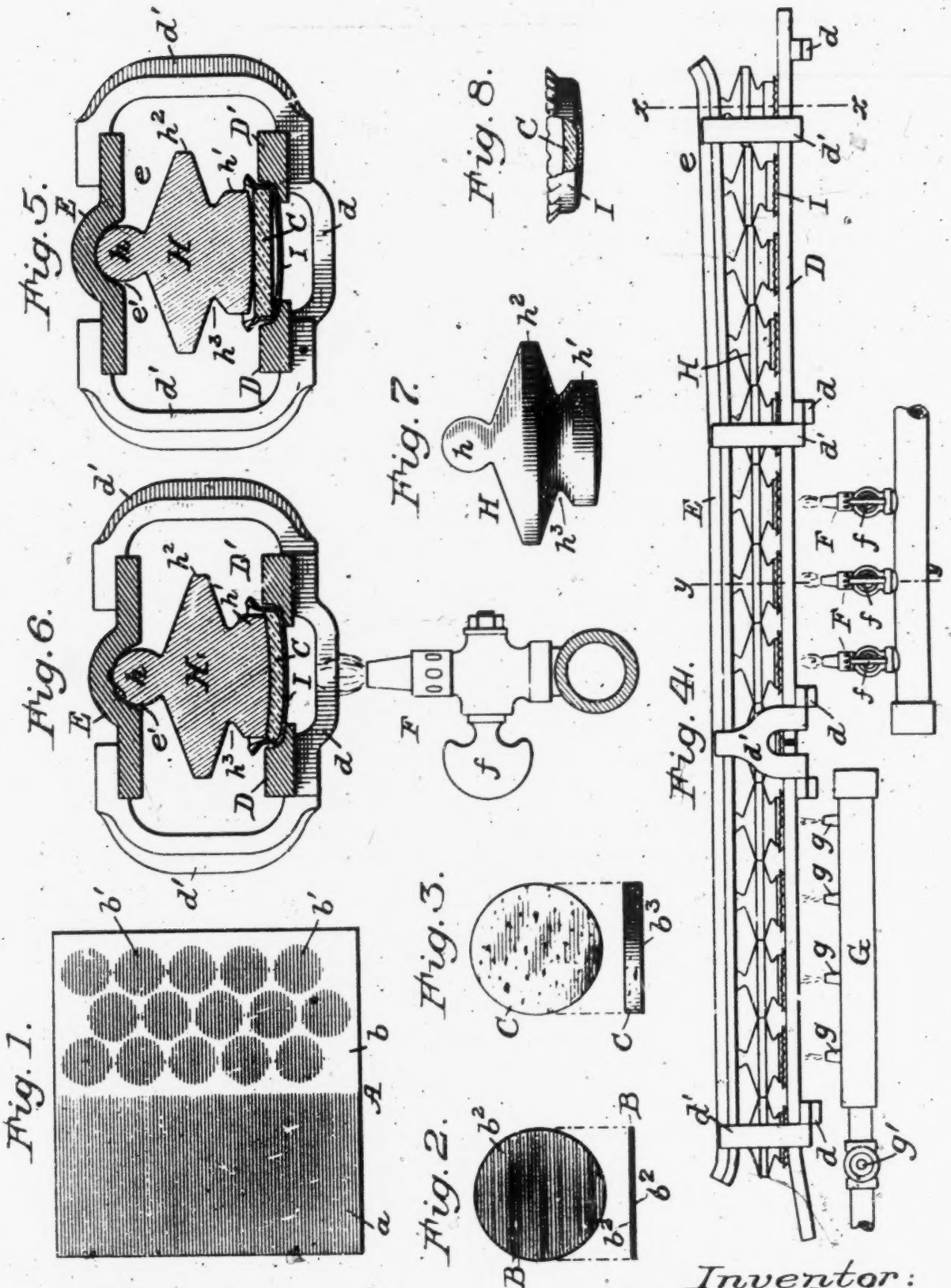
1234

No. 792,284. PATENTED JUNE 13, 1905.

W. PAINTER.

METHOD OF MANUFACTURING BOTTLE CLOSURES.

APPLICATION FILED JUNE 6, 1902.



Attest:
Howell Battle
Edw. Yeates

Inventor:
William Painter,
By Wm. G. Ford
Attorney

No. 792,284. Patented June 13, 1905.

UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE CROWN CORK AND SEAL COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

METHOD OF MANUFACTURING BOTTLE-CLOSURES.

SPECIFICATION forming part of Letters Patent No. 792,284, dated June 13, 1905.

Application filed June 6, 1902. Serial No. 110,535.

To all whom it may concern:

Be it known that I, WILLIAM PAINTER, of the city of Baltimore, in the State of Maryland, have invented a certain new and useful Method or Process of Manufacturing Bottle-Closures, of which the following is a specification, taking in connection therewith the accompanying drawings, intended to contribute to a proper disclosure of my invention.

My present invention specially relates to the manufacture of such "bottle-closures" as are semimetallic and are accurately described (and classed) as "crown cork sealing-caps" or "closures," the same having been devised by me and originally disclosed in United States Letters Patent Nos. 468,226, 468,258, and 468,259, issued to me February 2, 1892.

While I am well aware that my invention, broadly considered, will afford substantial value in all operations wherein it is now or hereafter may prove to be specially desirable to adhesively unite any compressible and semi-resilient material to metallic surfaces, I have developed said invention only in the manufacture of said semimetallic gas-tight bottle-closures, and hence I will confine this specification to a description of operations in that special art and duly restrict my claims thereto.

The principal objects sought through my present invention are to enable the production of bottle-closures of the aforesaid class in such a manner as will practically assure reliable results in bottling under gaseous pressure; also, to prevent bottled liquids from taint by contact with the metal of the cap and the incident corrosion of the metal; also, to assure a reliable union of the caps with the coöperating sealing or packing disks or gaskets therein, whether said packings or gaskets be in the form of disks or annular and whether composed of cork or any suitable substitute therefor, and also to enable the production of such closures with uniformity in greater perfection and with greater facility and at a cost substantially below that involved in any prior method practiced by or known to me.

Broadly stated, my novel method or process consists, first, in interposing a suitable fusible protecting and binding medium between the packing or sealing disks or gaskets and the coincident inner surfaces of the metal coöperating therewith and of which the crown-caps are composed; secondly, while the caps, disks, and fusible binding medium are properly heated for fusing said medium subjecting the whole to appropriate pressure, and, thirdly, while still heated and the packing held under controlling pressure hardening the binding medium or permitting it to harden by cooling it, the disk, and cap. Inasmuch as the slow cooling of these parts precludes many of the valuable economic advantages accruing from hardening the fused medium as promptly as possible, one feature of my invention consists (in this final step) in subjecting the cap, disk, and fused binding medium to artificial cooling influences for promptly cooling them while under controlling pressure.

Referring to the drawings, Figure 1 illustrates the surface of a piece of sheet metal, to one portion of which the binding and protecting medium has been applied as a surface coating, another portion having said medium applied thereto in circular spots. Fig. 2, in side and edge views, illustrates a paper collet charged with said binding and protecting medium. Fig. 3, in side and edge views, illustrates a packing-disk. Fig. 4, in side view, illustrates a raceway in which the caps, disks, and binding medium are suitably compacted, maintained under pressure, heated, and cooled, all during a progressive movement. Fig. 5 is a cross-section of the compressing end or part of the raceway on line $x\ x$ with a cap, disk, and presser-block in section, as when entering the raceway. Fig. 6 is a similar cross-section of the pressure-maintaining portion of the raceway on line $y\ y$ and showing a cap and disk in section over the heater. Fig. 7 is a side view of one of the presser-blocks; and Fig. 8 illustrates in edge view, partly in section, a finished bottle-sealing closure.

In the clause broadly describing the first step in my method or process I have employed the word "interposing," meaning thereby

that it is immaterial for the purposes of this invention in what manner the fusible protecting and adhesive medium is or may be applied or interposed between the packing-disks and the metallic surfaces where it is to perform its intended functions—as, for instance, I have applied said medium to the sheets of tin from which metal is initially cut and formed into caps, so that their interior surfaces are thereby well and properly coated. I have also applied the medium to such sheets in circular spots at those points at which the initial cuts are to be made; also applied the said medium to the interior of formed caps; also interposed paper collets well charged with the medium; also applied said medium to the inner or rear surfaces of the cork disks, gaskets, or packing. In these so far recited interpositions said medium has been in the form of solution well dried after application. Outside of solutions I have further applied said medium in a pulverulent form, dusted upon the interior surfaces of the caps, which are then ready to receive their sealing-gaskets, and, still further, said medium in the form of a film cut in circular or other shapes and interposed between the metal surfaces and the gaskets. It will now be evident that whether the caps are "born" (as indicated) with the fusible protecting and adhesive medium therein or said medium be afterward applied and so that it may perform its complex functions the first step in my method or process will be involved in the appropriate assemblage of the caps, fusible medium, and sealing disks or gaskets. The best results thus far attained by me have accrued from the use of gum-shellac in alcoholic solution, it being understood that one, two, or more of the stated interpositions may be employed, according to the exigencies involved—as, for instance, the greater the corrosive tendency of a bottled liquid the greater the need for extra protection of the interior surface of the cap as against possible contact of such liquid, and the same or similar extra protection should be provided for liquids containing a high percentage of alcohol, which is a solvent of the preferred protecting medium. Special protection will be effective, for instance, by a direct coating on the metal, and in addition by way of the collet, and even still further with the coating on the disk or packing. The variations in quantity of the protecting medium thus interposed call for proportionate care in the application of the fusing heat during the second step of the process, as will be hereinafter more fully indicated.

Referring now to the drawings, in Fig. 1 a piece of sheet metal A is shown with one portion *a* thereof having its surface wholly coated with the protecting medium, and at another portion thereof, as at *b*, said medium is applied (as shown on a small scale) only in circular spots *b' b'*, &c., these being of proper size and appropriately located to enable the desired metallic caps (such as shown in Fig. 8) to be cut and formed from the metal so coated. As between these two applications of such medium there is involved an economy in favor of the "spots" in avoidance of waste in the coating which goes with the waste metal when the sheet is wholly coated; but in both cases not only is the inner top surface of the cap coated, but also the inner surface of its flange. The paper collet B of Fig. 2 is not only usually filled or charged with said medium, but it may be and is sometimes coated on both of its faces b^2 b^2. The packing-disk C of Fig. 3 has when needed its inner face b^3 coated with said medium.

I am aware that for the technical requirements of this specification there need be mentioned only a single type of suitable fusible protecting and binding medium; but with a view to an appropriate guidance to persons skilled in gas-tight bottle-closures and in the art of bottling I deem it proper to state that during my extended experience in this art I have used such gums as copal, sandarac, dammar, kauri, &c. I have, however, found no gum so reliably free from objectionable odor and taste and so safely worked in fusing as gum-shellac applied in alcoholic solution, although I find a close rival therewith in the best forms of Egyptian asphaltum in aromatic benzol solution.

Having proceeded as thus far described the assembled disks, caps, and binding medium, with or without the collets, are compressed and heat applied to the exterior surface of each cap in accordance with the second step in my process. The degree of compression may be varied according to specific requirements—as, for instance, pressure being always applied against the exposed or working face of the disk it should always be sufficient to cause the disk to closely conform to the sectional contour of the top of the cap and usually caused to lie snugly against the flange thereof. If the disks be of sliced cork (as distinguished from cork compound) and previously compressed for crushing hard spots therein, the pressure of this step need only be as already indicated; but if said disks should require "crushing" after the assemblage described then a heavier pressure would be appropriate. Such heavy pressure having been applied, it might or might not be further maintained, provided enough compression be continued to secure the effect of the lighter pressure, as hereinbefore indicated. The so assembled and compressed parts being then exposed to heat, it is immaterial in this step how the heat may be afforded or applied, provided a fairly perfect control of temperature is involved or an equivalent control of the time of exposure thereto. If unduly heated or for too long a time, the fusible medium may be caused to boil and to

exude toward the working face of the disk, as when much of said medium is employed, or with lesser quantity thereof to burn or coke it, and so render it useless, with a further liability of injury to the disks, and especially if the latter be of a composite type containing fusible material. I have employed with good results an electric heating-table which can be quite evenly maintained at a given temperature and upon which the closures may rest and be moved, the time or duration of exposure being relied upon for gaging as to safety. The simplest, safest, and most effective heating has, however, been attained by me by the use of suitable smokeless gas-flames, which being readily gaged as to volume enable an accurate and safe determination as to required time for exposure appropriate to the fusible medium, as well as the packing-disk, according to kind and quantity of fusible matter and variety of disk in each lot of closures. It will be obvious that in proceeding with this second step of my process it will be immaterial as to whether or not the heating and compression be initially simultaneous—as, for instance, the heating could be (and has been by me) begun before pressure was applied to the disks without materially affecting the results sought—although I deem it preferable to have pressure slightly precede the heating for better enabling the proper seating of the disks in the caps. During the compression of the disk the flange of the cap may be simultaneously slightly forced inwardly against the edge of the disk, as has been practiced by me; but it is to be understood that my present invention does not depend upon any accompanying mechanical action upon the cap-flange.

As hereinbefore indicated, the third or final step in my process involves, essentially, the hardening of the fusible medium while it, the packing-disk, and the cap are maintained under the appropriate pressure of the second step, and I will now refer to the drawings and describe the simple appliances selected for illustrating the operations involved in said second and third steps.

In Fig. 4 that which I have herein termed a "raceway" embodies two foot-rails D and D′ in the same horizontal plane and separated by a space somewhat less than the least diameter of the caps to be supported thereon with tops downward. Above said rails is an overlying head-plate E, symmetrically grooved at its under side centrally and longitudinally and in line with the center line of the space between the foot-rails. The rails are coupled and braced at intervals by underlying bow-shaped tie-braces d, and the head-plate is supported by and coupled to the foot-rails by vertical outwardly-curved posts or ties d' d'. This head-plate E is horizontal and parallel with the rails except at its ends, both of which are inclined upwardly, the end at e being the entrance to the raceway. The groove e' in the under side of the head-plate is concave in cross-section, as clearly indicated in Figs. 5 and 6. Beneath a portion of the raceway, near its entrance, is a suitable gas-burner F, controlled by a suitable cock f, and beneath another portion, beyond the gas-burner, is an air-chamber G, provided with a series of small vertical jet-pipes g, through which air is delivered upwardly after having been previously compressed and cooled by well-known means, which it is deemed unnecessary for the purposes of this specification to show or particularly describe. The delivery of the air through the jet-pipes is controlled by a cock g'. With this raceway a set of press-blocks H (in a desirable form) are employed, each having a globular head h, (for properly occupying and sliding in the groove e',) a circular base h', (about as large as a packing-disk,) an enlarged contact-rim h^2, and a groove h^3 between said rim and base, as shown in Figs. 5, 6, and 7. The height of each of these blocks H is so proportioned that when placed upon a disk packing C, within a metal cap I, the whole will freely enter the raceway at the entrance e, as shown in section in Fig. 5, and so that when the block, cap, and disk are moved together inwardly (as by pushing pressure at or near the groove h^3) the inclined plane of the head-plate will cause the compression of the packing to a desired or proper degree upon the entrance of the parts to the straight or pressure-maintaining portion of the raceway, as indicated in the sectional view Fig. 6, where the heat from the burner is applied to the adjacent surface of the top of the cap. If, then, a second block, disk, and cap be entered and forced along into the raceway, the first will be moved before it, as by contact of the rims of the blocks (or be separately pushed along, as by a forked rod applied at the groove) until said first cap will overlie the cooling-jets g, at which the escaping air, by prompt expansion, will afford a low temperature, and so on, it being understood that after passing the air-jets the finished closures and blocks drop freely from the raceway because of its vertically-enlarged exit. It should be also understood that in proportion to the speed at which the raceway is supplied with caps, &c., either the longitudinal areas of the heating and cooling appliances or their respective capacities should be varied, so that however rapid the movement of the caps may be the heating and the cooling capacities should be such as to surely and safely heat and then to effectually cool the heated parts and harden the fusible medium before release from pressure occurs, and as those capacities are controllable they may be gaged to the limits which experience in working would show to be needed with each lot of caps. Now, referring back to the second step, it will be seen that it terminates with the release of the cap, &c., from the fusing operation at the heater

and that if the raceway was long enough (and there were no air-jets) the caps and blocks could be moved along (as others entered) and so kept under pressure until sufficient time had elapsed for the prevailing temperature of an average factory to assist in cooling of the cap and disk and hardening the fused medium. It will, however, be obvious that with the variable temperature of a room, as well as of the variations in exterior normal temperature, there would be corresponding variations in time required for perfecting the operation and also that with the long raceway suggested a large number of press-blocks would be required. However slowly the hardening of the fused medium may be accomplished, if it be done under the controlling pressure indicated valuable results will accrue; but many of the important objects of my invention can only be secured by hardening the fusible medium by the exposure of the assembled heated parts under pressure to artificial cooling influences, and hence an appropriate clause of claim will be presented for securing that portion of my invention. The packing-disks necessarily become heated and being slow to absorb heat are equally slow in releasing it, and the disks are liable to be injured from undue heating. As heat can only be applied to the fusible material and the disk by way of the metal cap, it follows that radiation of heat in cooling the medium, the disk, and cap must be mainly backward through the metal. The compressed disk and the imposed press-block afford little or no path for the escape of heat in that direction, and if the disk be released from pressure while still hot the controlling effect of the binding medium could not be assured, and a hot disk in seeking to assert its natural resiliency after compression could not be so thoroughly under control as when the disk, cap, and the interposed medium are all well cooled under appropriate pressure.

Various artificial cooling influences may be employed without departure from my invention—as, for instance, a cooling-table containing a refrigerant, as the opposite of the electric heating-table hereinbefore referred to, or by inclosing a considerable portion of a raceway within a conduit jacketed for the circulation of a refrigerant or cooling medium; but the most convenient, reliable, and readily-controllable cooling influence known to me is afforded by the jets of compressed air. The objects sought by me by the employment of artificial means for cooling the assembled parts and hardening the fusible medium are to accelerate production; to secure practical uniformity in the finished product; a complete "fixing" or setting of the packing-disk in the form or condition induced by heat and pressure; to enable heat to be applied safely up to the last second of requirement, and then to end it abruptly, thus obviating liability of injury to the disk and of boiling, overheating, and ruining the fusible medium; to assure a prompt contraction of the metal cap (after expansion by heat) before the packing is cooled and the fusible medium hardened; to reduce the number of press-blocks or equivalent pressing factors to a minimum, and to render it possible for the second and third steps of the process (including also the assemblage of disks and caps) to be rapidly and perfectly executed by compact automatic mechanical organizations, because the heating and the cooling operations being each accurately controllable as to time each can be readily gaged for coöperation with mechanism which can be operated at any given speed consistent with the various requirements.

For indicating the status of my present invention as to novelty I will state that so far as my knowledge extends the nearest approaches thereto are to be found in disclosures made by me in my hereinbefore-mentioned Letters Patent No. 468,226, dated February 2, 1892. In my present operations the packing-disks are thicker than those indicated in said patent, as a precautionary measure of safety, and I employ therewith as a rule a paper collet as a suitable substitute reinforce for the thin fabric reinforce disclosed in my Letters Patent No. 468,259, the same having also been used by me as an effective form of the protecting-film described in said Patent No. 468,226, when said collet is charged with the fusible medium, as hereinbefore indicated. In said Patent No. 468,226 I also disclosed the use of the fusible protecting adhesive medium, such as shellac and Egyptian asphaltum, and also the compression of cork disks after application of heat for fusing said medium. Up to the time of making my present invention, however, the pressure has been promptly removed from the disks after they were compressed in the cap upon the shellac, and thereafter heated, and hence during the cooling of the cap and disk and the hardening of the shellac, even with thin disks, there was no such full control of the mass as would or could insure those desirable and valuable results in the finished product as are secured by maintaining the parts under pressure while heated and until they are cooled as in accordance with my present invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In the manufacture of gas-tight bottle-closures composed in part of metal, the method or process which consists; first, in interposing a suitable fusible protecting and binding medium between the packing or sealing gasket and the coincident surfaces of the metal coöperating therewith; secondly, heating the metal, the gasket and the binding medium for properly fusing the latter, and in the meantime subjecting the whole to appropriate pressure; and thirdly, cooling the metal and avoiding injury to the gasket from undue heating

and hardening the fusible medium while maintaining said appropriate pressure, substantially as and for the purposes specified.

2. In the manufacture of semimetallic gas-tight bottle-closures, the method or process which consists: first, in interposing a suitable fusible medium between the packing or sealing gasket and the coincident surfaces of the metal coöperating therewith; secondly, heating the whole and properly fusing said medium, and in the meantime subjecting the whole to appropriate pressure; and thirdly, while still maintaining said pressure, promptly cooling the metal and avoiding injury to the gasket and hardening the fusible medium by artificial cooling influences, substantially as and for the purposes specified.

3. In the manufacture of semimetallic gas-tight bottle-closures, the method or process which consists: first, in interposing a suitable fusible medium between the packing or sealing gasket and the coincident surface of the metal coöperating therewith; secondly, heating the whole and properly fusing said medium, and in the meantime subjecting the whole to compression; and thirdly, cooling the metal and avoiding undue heating of the gasket and hardening the fusible medium while said compression is maintained, substantially as described.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM PAINTER.

Witnesses:
C. E. TEALE,
GEO. E. TAYLOR.

BLANK

PAGE

DEFENDANT'S EXHIBIT 1 1 1

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the

Letters Patent of

Albin H. Warth, Assignor, by Mesne Assignments, to Crown Cork & Seal Company, Inc.,

Number 1,788,260. Granted January 6, 1931,

for

Improvement in Processes of Producing Closures.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this nineteenth day of January, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-eighth.

ATTEST:

Chief of Division.

Commissioner of Patents.

1240

1241

1485

135

NUMBER (Series of 1925)
159743

PATENT NO. 1788260

1927

DATED JAN 6 - 1931

(EX'R'S BOOK) 25—46 (-)

DIV. 58 — 14

Name ALBIN H. GARTH

by mesne assignments to Crown Cork & Seal Company, Inc., of Baltimore City, Maryland, a corporation of New York

of BALTIMORE

State of MARYLAND

Inventor

PROCESS OF PRODUCING CLOSURES

ORIGINAL

APPLICATION FILED COMPLETE JAN 7, 1927

PARTS OF APPLICATION FILED

Petition, Specification, Oath, First Fee $20, JAN 7, 1927

— sheets Drawings,

Drawing (1 sheet) Nov 25-1930

Drawing Transferred to Ser # 707995

Examined and passed for Issue Dec. 11, 1930

AJ Brumbaugh Exr. Div. 14

Notice of Allowance Dec 11 1930 By Commissioner

Final Fee $25 Dec 11, 1930

Attorney PHILIPP, SAWYER, RICE & KENNEDY 220 BROADWAY NEW YORK N Y

Cushman, Bryant & Darby, Washington Loan & Trust Bldg., City

Associate Attorney

Authority to Inspect - Cushman Bryant & Darby

No. of Claims Allowed 21 Print Claims 1 in O. G. Class 113-85

Title as Allowed Process of Producing Closures

RENEWED

Reexam'd and passed for Issue, 192

Exr. Div.

Notice of Allowance, 192 By Commissioner.

Final Fee, 192

Division of Apps., filed, 19

102

1242

1486

JAN 7 1927

LAW OFFICES
OF
PHILIPP, SAWYER, RICE & KENNEDY,
ST. PAUL BUILDING, 220 BROADWAY.

New York City, Jan. 6, 1926

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We send herewith petition, specification, oath, and no sheets of drawings in an application of Albin H. Warth for patent on improvement in

Process of Producing Closures

also check for $30. in payment of first Government fee.

Respectfully,
PHILIPP, SAWYER, RICE & KENNEDY,
Attorneys.

103

1243

1487

159743

13879

PETITION.

The Honorable Commissioner of Patents:

Your petitioner, Albin H. Warth, a citizen of the United States, residing at Baltimore, in the ~~County~~ and State of Maryland, (whose Post-Office address is c/o Crown Cork & Seal Co., Baltimore, Md.) prays that Letters Patent of the United States be granted to him for the invention in a Process of Producing Closures

set forth in the annexed specification, and he hereby appoints Cleon J. Sawyer, James Q. Rice, James J. Kennedy and Philip B. Philipp (of the firm of Philipp, Sawyer, Rice & Kennedy, St. Paul Building, 220 Broadway, New York, P. O. Box 164, City Hall Station), his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Albin H. Warth

SPECIFICATION.

To all whom it may concern:

Be it known that I, Albin H. Warth, a citizen of the United States, residing at Baltimore, ~~County~~ of ~~and~~ State of Maryland, have invented certain new and useful improvements in a Process of Producing Closures fully described and represented in the following specification and the accompanying drawings forming a part of the same.

7.

This invention relates to a method of producing closures of the type in which a sealing disk has a metal foil facing.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks are given a facing of metal foil, e.g. tin foil, or aluminum foil. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the ~~tin foil~~ spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the ~~tin foil~~ spots are apt to drop out. According to another method the ~~tin foil~~ spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with.

It is an object of the present invention to provide a method of producing spot center crowns such that the ~~metal foil~~ spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i.e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine to which is added 5% or less of a vegetable oil such as soya bean or china-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less.

While the coating may be applied to the ~~metal foil~~ material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. In this connection it is noted that the ~~metal foil~~ spots may be conveniently assembled by feeding a strip of ~~metal foil~~ material over successive crown corks and cutting out a ~~metal foil~~ disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperatures it is more rapidly accomplished at a temperature of about 300° F. maintained for about 30 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing disks. It

case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary massage through assembling apparatus.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

1247

1491

I. c.

WHAT IS CLAIMED IS: (C"-cl. 1)

1. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with a substance which is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, softening the coating, and pressing the coated metal foil against a sealing disk.

2. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with an adhesive substance, cutting a facing spot from the metal foil, assembling the coated spot with a sealing disk, and applying heat and pressure to the assembled unit.

3. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with a substance which is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, cutting a facing spot from the coated metal foil, assembling the metal foil spot with a sealing disk, heating the assembled unit to soften the coating, and applying pressure to the assembled unit while so heated.

4. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with a substance which is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, assembling the coated metal foil with a sealing disk, heating the assembled unit to soften the coating, and applying pressure to the assembled unit while so heated.

5. The method of producing closures of the type in which a sealing disk has a metal foil facing, which com-

prises coating metal foil with a liquid substance at room temperatures, which substance is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, assembling the ~~coated metal~~ metal spot foil with a sealing disk, heating the assembled unit to soften the coating, and applying pressure to the assembled unit while so heated.

6. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with a substance which is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, assembling the coated metal foil with a cork sealing disk, heating the assembled unit to soften the coating, applying pressure to the assembled unit while so heated, and cooling the softened adhesive, under pressure, to the congealing point thereof.

7. A substance for use in uniting metal foil spots to cork disks characterized by being substantially devoid of tackiness when dry and by adhesive qualities when soft and being rendered soft by heat.

8. A substance for use in uniting metal foil spots to cork disks characterized by being substantially devoid of tackiness when dry and by adhesive qualities when soft and being rendered soft by heat and being insoluble in cold water.

9. A substance for use in uniting metal foil spots to cork disks, comprising a solution of damar gum and rosin in mineral spirit having a small amount of a vegetable oil.

1249

1493

In testimony whereof, I have hereunto set my hand.

Albin H. Warth ⊙□

OATH

State of Maryland)
City) ss.:
~~County~~ of Baltimore)

Albin H. Warth the above-named petitioner being duly sworn, deposes and says that he is a citizen of the United States, and resident of Baltimore, ~~County~~ of , State of Maryland ; that he verily believes himself to be the original, first, and sole inventor of the improvements in a Process of Producing Closures

described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvements has been filed by him or his legal representatives or assigns in any country foreign to the United States.

Subscribed and sworn to before me this 23rd day of December, 1926. } Albin H. Warth

W. H. Hawley
Notary Public

My Commission Expires [illegible]

118

1250

1491

Div. 50 Room 322

Address only "The Commissioner of Patents, Washington, D. C." and not by name

VIII/R

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 2

All communications respecting this application should give the serial number, date of filing, and name of the applicant

MAILED
APR 16 1927

Please find below a communication from the EXAMINER in charge of this application

Thomas E. Robertson
Commissioner of Patents

Philipp, Sawyer, Rice & Kennedy,
220 Broadway,
New York, N. Y.

Applicant: A. H. Warth,

Ser. No. 159,743
Filed Jan. 7, 1927
For Process of Producing Closures.

References made of record:

McManus,	1,213,926	Jan. 30, 1917	154-45.5
Okie,	1,565,027	Dec. 8, 1925	87-17

The claims are directed to independent invention. Division is required between claims 1-6 inclusive for the method of making the closure examinable and classifiable in Div. 50, Class 154 and claims 7-9 inclusive for the adhesive, examinable and classifiable in Div. 31, Class 87.

The references are merely illustrative and are cited after a cursory search.

E. L. Bean

Examiner.

111.

1253

1497

Div. 56 Room 311

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 5

All communications concerning this application should give the serial number, date of filing, and name of the applicant

MD/jmk

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

January 11, 1929

Philipp, Sawyer, Rice & Kennedy, 220 Broadway, New York, N.Y.

Applicant: Albin H. Warth

Ser. No. 159,743
Filed Jan. 7, 1927
For Process of Producing Closures

JAN 11 1929

Responsive to amendment filed March 13, 1928.

The following additional references are made of record:

Alberti	1,234,711	July 31, 1917	154-Bot. Class.
Koch	1,238,156	Aug. 28, 1917	"
Marsa	1,603,786	Oct. 19, 1926	"
French patent,	557,391	May 2, 1923	"

Claims 1-6 are rejected on any of the references cited which disclose the coating of a metallic foil with an adhesive which is rendered soft by heat, applying the coated metal to cork and holding under pressure until the adhesive hardens.

A drawing is required. See rule 49. However, this need not be furnished until some allowable matter is found in the application.

MD

114

Examiner.

6

MAIL DIVISION
JUN 27 29
U.S. PATENT OFFICE

U. S. PATENT OFFICE
JUN 28 1929
DIVISION 56

IN THE UNITED STATES PATENT OFFICE

In re application of
Albin H. Warth,
PROCESS OF PRODUCING CLOSURES,
Serial No. 159,743,
Filed Jan. 7, 1927.

Div. 56 - Room 311

New York, June 26, 1929.

Hon. Commissioner of Patents,
Washington, D. C.

S i r :

In response to Official action of Jan. 11, 1929, amendment is hereby made as follows:

Erase claims 1, 4 and 6.

In claim 5, at the end of line 5, insert: cutting a facing spot from the coated foil,

Same claim, line 6, for "coated metal foil" substitute - metal foil spot

R E M A R K S

By this amendment applicant has endeavored to reduce the number of claims. Reconsideration is requested as to the remaining claims.

Applicant has provided an efficient and beneficial method of producing spot center crowns, not disclosed or suggested in the references. In carrying out the invention, as defined by the claims, tin foil - either in strip or sheet form - is coated with a substance that is adhesive when soft and substantially devoid of tackiness when dry. The coating is dried, a "spot" is cut from the coated foil and assembled with a sealing disk. The assembled unit is then subjected to heat to soften the coating and to pressure to

1255
1499

With the method described, the adhesive may be applied cold, i.e. at room temperatures. By coating a sheet or strip of foil and then cutting out spots, the necessity of applying an adhesive to individual crowns during assembly is avoided. The coated strip or sheet can be handled in assembly machines without difficulty because the coating when dried is devoid of tackiness. Moreover, the coating gives the foil a certain amount of body which facilitates handling.

The Examiner states that any of the references discloses the use of an adhesive rendered soft by heat and applying under pressure. But applicant is not claiming anything so broad as that. None of the references discloses coating foil with a substance of the characteristics mentioned, drying the coating to render it non-tacky, cutting a spot from the coated foil and assembling by heat and pressure.

Allowance is requested.

Respectfully submitted,

Albin Horvath

By Philipp Sauppe
Rice & Dewey

Attorneys.

116

1256

1500
1256

Div. 56 Room 311

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 7

All communications requesting this application should give the serial number, date of filing, and name of the applicant

MD/jmk.

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

GPO 11—3223

February 4, 1930

Applicant: Albin H. Werth

Philipp, Sawyer, Rice & Kennedy, 220 Broadway, New York, N.Y.

Ser. No. 159,743
Filed Jan. 7, 1927
For Process of Producing Closures

FEB 4 1930

Responsive to amendment filed June 27, 1929.

Claims 2, 3 and 5 are again rejected on the reference to Marsa who fully discloses applicant's process. Marsa discloses the application of adhesive in spots to a metallic sheet, cutting 'spots' from the sheet and then drying the adhesive. See page 1, lines 83-89. A sealing disk is then applied to the coated spot, heat is applied to fuse the cement (page 1, lines 100-105) and then pressure is applied.

Claims 2 reads directly on this reference and claims 3 and 5 differ only in sequence of the drying step. The applicant dries first, then cuts, whereas, the patentee cuts and dries. This mere change in sequence is a non-patentable variation and devoid of invention.

As an issue has been reached, this rejection is now made final.

Examiner.

1257

1501

676

1630 079690 Chec

Rec'd

MAIL DIVISION JUL 18 1930 U.S. PATENT OFFICE

U.S. PATENT OFFICE JUL 18 1930

IN THE UNITED STATES PATENT OFFICE

In re application of Albin H. Warth, Serial No. 159,743, Filed Jan. 7, 1927, PROCESS OF PRODUCING CLOSURES.

BEFORE THE BOARD OF APPEALS

appeal #8

Hon. Commissioner of Patents,
Washington, D. C.

S i r :

I hereby appeal to the Board of Appeals from the decision of the Primary Examiner in the matter of my application above identified, which on the 4th day of February was finally rejected. The following are the points of the decision on which appeal is taken:

(1) Because the Examiner erred in rejecting each of claims 2, 3 and 5 on the references and for the reasons of record.

(2) Because the Examiner erred in not allowing each of said claims 2, 3 and 5.

An oral hearing is requested.

Check for appeal fee is enclosed.

Respectfully,

Albin H. Warth

By Thurston Sawyer Rice & Kennedy

Attorneys.

Enclosure.

JUL 18 1930 PATENT OFFICE

Paper No. 9

DEPARTMENT OF COMMERCE

MUI/jmk UNITED STATES PATENT OFFICE

WASHINGTON

July 24, 1930

In re: Application of
Albin H. Warth
Baltimore, Md
For: Process of Producing
Closures
Filed: Jan. 7, 1927
Serial No. 159,743

Before the
Board of Appeals
On Appeal

EXAMINER'S STATEMENT

Applicant has appealed from a final rejection of claims 2, 3 and 5, all in paper No. 1.

The reference relied upon is:

Masa 1,603,786 Oct. 19, 1926

The invention claimed consists of a method of producing sealing disks for bottle caps in which metal foil is coated with a cement which is sticky when soft or wet and devoid of tackiness when dry, drying this coating, cutting a disk from the metal foil, assembling the metal foil spot with a sealing disk, heating the unit so as to soften the cement and applying pressure to the unit while so heated.

This method has the advantage of providing a facing spot which is free from tackiness and, therefore, easy to handle. The method, however, is completely anticipated by Masa. This patent coats a metal sheet with a fusible cementing material and then subjects the sheet to heat in an oven so as to evaporate the solvent material of the cement. Disks suitable for crown cork

1259

1503

Ser. No. 159,743. Sheet #2.

caps are then cut from this metal sheet, bent into the shape of a crown cap, a sealing disk of cork inserted andthe unit heated in order to fuse the cementing material, the metal and the sealing disk then being united under pressure. The patentee states that the cement may be heated either before ot after assembling the unit andthe steps of the process are, therefore, substantially the same.

While the patentee applies cement to the crown cap itself and applicant applies cement to a facing disk to be inserted in a crown cap this is not believed to be a patentable difference since the result is the same and the patentees process could just as readily be applied to the production of the closures shown by applicant, the steps being identicaland the materials substantially the same

Respectfully submitted.

L. Porter
Examiner, Div.56.

JM 8

1260

1504

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

#10.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Aug. 6, 1930

Serial) Appeal received
(No. 159,743
Interference)

A. H. Warth.

The date of hearing on this appeal can not be set prior to Dec. 1, 1930.

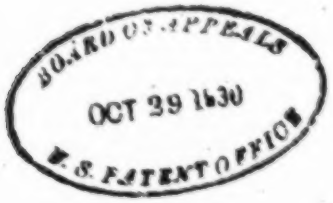
Notice of the date of hearing will be mailed as soon as the date is decided upon.

Thomas E. Robertson
Commissioner.

Messrs. Philipp, Sawyer, Rice & Kennedy,
220 Broadway,
New York, N.Y.

1261

1505



October 25th 1930

IN THE UNITED STATES PATENT OFFICE

Name: Albin H. Warth

Serial No.: 159,743

Filing Date: Jenuery 7th, 1927

Crown Cork and Seal Company, Inc., assignee of record of the entire right, title and interest in the above entitled application,

hereby give

Messrs. Cushman, Bryant & Darby, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, whose registry number is 7196, in the above application a power to inspect the application file in the Patent Office and make copies of all papers.

CROWN CORK & SEAL COMPANY, INC.

By H. E. Justus

Vice President

1262

1506

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

384.2 Appeal No. 135 Paper No. 12
Paper No.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

November 17, 1930

Sir:

The case of Albin H. Barth

Serial No. 159,745, will be heard by the Board of ~~Interference~~

Appeals on the 23rd day of December, 1930

The hearings will commence at ~~9:30 A.M.~~ 1:30 P.M. and as soon as the argument in one case is concluded the succeeding case will be taken up.

If any party, or his attorney, shall not appear when the case is called, his right to an oral hearing will be regarded as waived.

The time allowed for arguments is as follows:

Ex parte cases, thirty minutes;
Inter partes appeals: Interlocutory and final hearings when no testimony has been taken, thirty minutes each side; final hearing when testimony has been taken, one hour each side.

By special leave, obtained before the argument is commenced, the time may be extended.

The appellant shall have the right to open and conclude in inter partes cases, and in such cases a full and fair opening must be made.

Briefs in inter partes appeals must be filed in accordance with the provisions of Rules 144 and 163.

Respectfully,

Thomas E. Robertson

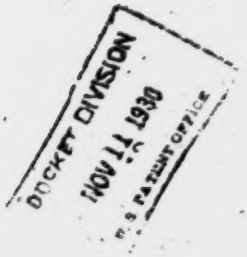
Commissioner of Patents.

To

To Philipp, Sawyer, Rice & Kennedy,
220 Broadway,
New York, N.Y.

1263

1507



Div 56 - #13
Now on appeal to Board of Appeals

IN THE UNITED STATES PATENT OFFICE.

Inventor: Albin H. Warth,
Invention: Process of Producing Closures,
Serial No. 159,743,
Filed January 7, 1927.

POWER OF ATTORNEY.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

The Crown Cork & Seal Company, Inc., assignee of the entire interest in the above entitled application, hereby appoints, as its attorneys, with the usual powers, Cushman, Bryant & Darby, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, (Reg. No. 7196), Washington Loan & Trust Building, Washington, D. C.

All existing powers are hereby revoked.

CROWN CORK & SEAL COMPANY, INC.

By _____
Vice President.

Accepted
NOV 24 1930
J. E. Robertson
Commissioner.

Dated:-

1264

1508

Appeal No. 135 Paper No. 14

IN THE UNITED STATES PATENT OFFICE.

Albin H. Warth,
PROCESS OF PRODUCING CLOSURES,
Filed January 7, 1927,
Serial No. 159,743.

U.S. PATENT OFFICE
DIVISION 56

BEFORE THE BOARD OF APPEALS.

In view of the recent conferences with the Primary Examiner, from whom this case was appealed (Div. 56), appellant has submitted an amendment which is thought to place the case in condition for allowance.

This amendment bears the endorsement of the Examiner to the effect that it places the case, in his opinion, in condition for allowance. The single claim presented in the amendment has also been approved by the Primary Examiner in Division 15.

BOARD OF APPEALS
U.S. PATENT OFFICE

In view of the Examiner's endorsement of the proposed amendment, appellant consents to and requests (1) dismissal of the appeal, and (2) a recommendation by the Board that the Examiner enter the attached amendment and allow the application.

Respectfully,
Albin H. Warth.

By [signature]
Attorneys.

JJD:KB

November 25, 1930.

1265

1509

NOV 25 30

IN THE UNITED STATES PATENT OFFICE

15/C, Supp Ack

Albin H. Warth,
PROCESS OF PRODUCING CLOSURES,
Filed January 7, 1927,
Serial No. 159,743.

U. S. PATENT OFFICE
DEC 3 1930

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 1

Line 3 after the period insert --This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.--

Line 7 before "facing" insert --non-absorbent, gas impervious and acid resistant--.

Line 8 after the period insert --Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing discs or spots upon the cushion material of crown caps.--

Line 13 cancel "tin foil".

Line 15 cancel "tin foil".

Line 17 cancel "tin foil".

Line 24 after the period insert the following:

For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the neces sity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious C-3 medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shell itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

C 3

In the application o heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

Line 27 cancel "metal foil".

Page 2

Line 2 before "metal" insert --strip material having a surface which is substantially non-absorbent and gas impervious, such as--

Same line (2) after "foil" insert a comma.

Line 6 before "insoluble" insert --waterproof or--

Line 13 after the period insert --This adhesive is waterproof and is not weakened by gases or acids, such

as are present in the bottle contents with which crown caps are usually employed.

Line 15 cancel "metal foil" and substitute --material--

Line 17 after the period insert —So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be distrubed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine.—

Line 17 cancel "metal foil".

Line 19 cancel "metal foil" and substitute --material--

Line 20 cancel "metal foil".

Line 32 after the period insert —Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive

tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

Page 3

Line 8 after the period insert:

In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied.

Line 11 after the paragraph insert the following:

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for

cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in

Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22

of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 deseends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 26, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

Page 3

Line 12 cancel "cooled" and substitute --permitted to cool--

Line 17 cancel the paragraph beginning "It may be desirable".

Page 4

After the last line insert the following:

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the

1274

1518

labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

IN THE CLAIMS:

Cancel the claims and substitute:

1275

1519

hwd

07a

The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

C"

~~claim~~ D'

D) Please enter the accompanying sheet of drawings.

D'-6.2

REMARKS

It is believed that the foregoing amendments place this case in condition for allowance, and that the Examiner will feel warranted in recommending to the Board of Appeals, that the amendment be entered and the new claims allowed.

To the best of my knowledge and belief, the claim submitted by this amendment is patentable. The balance of the amendment can be entered and the case passed then be passed for issue.

J.J. Porter
Examiner
Dec 56.

With respect to the delay in presenting this amendment, a recent conference between present attorneys and the applicant made it apparent that the real problem which applicant has solved and the definite advance he has made over the prior art, are not set forth in the specification

with sufficient distinctness to cause the Examiner to appreciate the precise problem the applicant has solved and the importance of his contribution to the art. Immediately upon discovering this fact, applicant's attorneys took steps to obtain a conference with the Examiner and to present to him the additional information which, as now embodied in the specification, is thought to justify the allowance of protection. It is thought that these conclusions are borne out by the interview kindly granted the applicant and his counsel, and that in view of these facts the delay in presenting the amendment and claims may be properly excused. If the Examiner desires an affidavit explaining the reason for the delay in presenting claims of the character now submitted, it will be furnished.

The Examiner's attention is particularly directed to the additional matter inserted in the specification. This matter simply explains the relation of the present invention to the prior art and defines the characteristics of the material involved in the use of the method which make the method a very valuable advance over former practices.

The applicant does not claim to be the first to have used metallic foil; this material is simply one of numerous materials which have been used for years in the spotting or facing of caps. These cap facings or spots are employed in order to afford a non-absorbent, gas impervious and acid resistant surfacing for the cushion material which is used in crown caps. As the Examiner will, of course, appreciate, other materials have been used, such as paper suitably finished to impart these characteristics to the same.

At the time the applicant made the present invention, it was customary to "spot" by feeding the acid and gas resistant material in strip form, and also the adhesive tissue in strip form, and to simultaneously punch from the strips discs of the acid resistant material and of the adhesive tissue. Another practice was to deposit on the cushion material of the cap the cement or liquid adhesive, and then to apply the disc of acid resistant material. The use of this liquid made the process slow in view of the difficulties in applying the glue or paste. Moreover, the use of a separate strip of adhesive in tissue form was objectionable for various reasons, which are now fully explained in the specification. Briefly stated, these objections were:

FIRST - it was difficult to handle the adhesive in tissue form and breakage of the same made necessary the stopping of the cap machine.

SECOND - stretching or distortion of the tissue adhesive made it difficult to obtain exact registry of the tissue disc and acid-resistant material disc when the two were applied to a cap.

THIRD - due to drag in the cutting dies, it was not always possible to obtain exactly corresponding sizes of tissue and material discs, with the result that the entire bottom surface of the material disc was not always backed with adhesive and the material disc was not always united to the cushion throughout its entire edge.

FOURTH - the necessary thickness of the adhesive tissue resulted in expression of the same from beneath the facing when pressure is applied to the spot.

FIFTH - the handling of two strips of material retarded operation of the cap assembling machine.

SIXTH - the necessary thickness of the adhesive tissue made it difficult to obtain a firm bonding of the tissue and facing material throughout the face of the disc.

SEVENTH - after the punching operation the separate discs moved out of registration and resulted in a large proportion of deffective caps.

These and other objections to the previously used processes have been overcome by the applicant. His invention involved, as a primary concept, the elimination of the use of separate strips in the cap assembly operation. As a secondary concept, it involved the provision of a unitary multi-layer strip with the layers bonded, one surface of this strip being a waterproof adhesive which will soften under the application of heat and pressure, and the other surface being acid resistant, gas impervious and non-absorbent. It has frequently been pointed out by the Courts that invention often consists in discovering what is the difficulty with existing structures or methods, and that this constitutes invention, although the means for overcoming these objections are comparatively simple. For example, Judge Hough said in the case of Kurtz et al, v. Belle Hat Lining Co., Inc., (C. C. A. 2nd Cir.) 280 Fed. 277 (at 281):

> "Patentability has often been found 'in discovering what is the difficulty with an existing structure' and correcting the same, even though 'the means' are old and their mere 'adaptation to the new purposes involves no patentable novelty.' Miehle, etc., Co. v. Whitlock, 223 Fed. 647, 650, 139 C. C. A. 201. Hindsight, or wisdom after the fact, has always been looked upon with disfavor; e. g. Parlee Co. v. Brown, 121 Fed. 547, 550, 57 C. C. A. 609."

The same Circuit Court of Appeals in the earlier case of Miehle Printing Press & Mfg. Co. v. Whitlock Printing Press Co., 223 F. R. 647, said:

> "Patentable novelty is sometimes found in discovering what is the difficulty with an existing structure and what change in

> its elements will correct the difficulty, even though the means for introducing that element into the combination are old and their adaptation to the new apparatus involves no patentable novelty".

In these decisions the Courts simply followed other decisions to the same effect, such as Patents Selling v. Dunn 204 Fed. 99; General Electric v. Hartman 187 Fed. 131; General Electric Co. v. Sangamo Electric Company (C. C. A. 7th) 174 Fed. 246. In the last case, the Court pointed out that there are two steps involved in an inventive act, namely (a) discerning in existing machines or processes some deficiency, and (b) pointing out the means to overcome the same. The Court said this in the following language:

> "Invention, in the nature of improvements, is the double mental act of discerning in existing machines, processes, or articles, some deficiency and pointing out the means of overcoming it."

The applicant's invention, from the standpoint of conception, consisted in three steps. First, he perceived that the former practices of using (a) paste or glue, or (b) a separate strip of adhesive tissue, were cumbersome and objectionable. He saw the objections and set out to overcome them. The second step in his invention was to supply the medium and method by which these objections might be eliminated. In connection with the second step, he supplied a material of laminated character having (a) one exposed surface which is acid resistant and gas impervious, and (b) another exposed surface with a thin coating of waterproof adhesive which softens under the application of heat, but is normally hard, so that the material may be conveniently handled. Thirdly, he went a step further and provided a complete method which involves the use of this material in such a way that caps might be more economically

produced and without the defects of caps produced according to the earlier methods. The applicant's method has numerous advantages, including the following:

1. The cost of product of spot crowns is very materially decreased; in fact this invention alone was the main factor in reducing the cost of production of spot crowns sufficiently to make possible commercial production.

2. There is but a single strip to handle, instead of the two separate strips of the former method.

3. There is no need of applying paste or glue to the cushion material of each cap.

4. The simultaneous cutting of the adhesive and material discs from a single strip insures that the adhesive is coextensive in area with the material with the result that there is no possibility of gas or moisture entering between the spot material and the cushion layer around the edges of the spot.

5. The thinness of the adhesive layer avoids expressi the adhesive when pressure is applied to the spot.

6. There is no tendency for distortion or stretching of the adhesive layer relative to the material strip.

7. There is no possibility of breakage of a fragile adhesive tissue which results in stoppage of the machine.

8. It is possible to inspect the facing material as it is fed into the assembly machine to insure that the entire surface is coated with adhesive, which cannot be done when the separate strips are fed or when paste or glue is first applied to the cushion material. In other words, imperfectly faced caps are virtually eliminated. There is absolute registration of the edges of the material disc and adhesive disc which is difficult to obtain in the manufacture from separate strips.

9. The discs in united form may be fed into the cap in absolute registry and assembled by the cutting punch, due to the bonded relation of the two layers.

10. The heat and pressure necessary for uniting the facing to the cap may be applied substantially simultaneously with the punching and assembly operations without waiting for inspection, since there is no danger of the adhesive and material discs moving out of registry with one another; this permits an operation in which the punch used to cut the discs may also be employed to apply the pressure.

These and other advantages of applicant's invention

make the same, from a practical standpoint, a radical advance in the art. The Examiner will appreciate this from the fact that this method has been adopted by the Crown Cork & Seal Company, in lieu of formerly used methods of the nature disclosed in the references cited. This Company, as the Examiner is probably aware, is the largest manufacturer in the world of crown caps.

THE PRIOR ART.

In view of the amplified description of the invention now embodied in the specification, the Examiner will undoubtedly appreciate that the disclosure in the patent to Marsa (1,603,786) has nothing whatsoever to do with this invention. The patentee is dealing with the formation of the cap and the application of the cushion layer thereto. The amended specification points out that this step takes place before the application of the facing spot, and that in the manufacture of the cap with which applicant's method is employed, the Marsa method may also be utilized. But the method described in the patent applies to an altogether different step in the manufacture of the cap. The Examiner's attention is called to the fact that applicant's assignee controls the Marsa patent, since the assignee of that patent, New Process Cork Company has been consolidated with the assignee of the present case.

The Marsa patent is the only one of the references of record which has in any way been advanced by the Examiner as pertinent to applicant's disclosure, and, therefore, it seems unnecessary to discuss the other prior art in detail. McManus (1,213,926) does not show a strip having an exposed adhesive surface. It would be impossible to practice applicant's method with this material.

The patent to Okie (1,565,097) obviously has no bearing upon the invention, since it relates to an adhesive composition.

The patents to Alberti (1,854,711) and Koch (1,858,156) contain no suggestion whatsoever of a method at all similar to that claimed by the applicant.

The French patent (557,791) shows a method of manufacturing a laminated disc in which an absorbent or porous layer 2 is united to a moisture resistant layer 8 by means of glue. The exposed layer 8 is not an adhesive layer. It is a moisture resistant layer, and may be applied as indicated at B in Figure 3 to only one side of the disc, or to both sides as shown in Figure 7. This moisture resistant layer is rubber treated with sulphur, and hence the construction has nothing whatsoever in common with either the material employed by applicant or the method of manufacture which applicant claims.

In addition to the foregoing art of record, the Examiner's additional search has recently developed certain references which it is thought should be made of record, and to these references we will refer briefly.

The patent to Alberti (1,941,300) does not show the method claimed, since the adhesive is applied to the cushion disc before the application of the disc.

The patent to Anderson (1,982,516) is from a non-analogous and unrelated art; it has nothing to do with cap manufacture or the application of spots to cushion material. The material employed and to which the coating is applied is not of the character which would resist the action of liquid and, therefore, is not spot material. Moreover, there is nothing in this patent suggestive of applying the method claimed to the art of cap manufacture.

Another distinction of importance is the fact that the adhesive employed is not water resistant, and this is of great importance, as pointed out in the specification and claims.

The patent to Burgard (835,176) discloses a machine for applyings tags or labels, and although an adhesive is applied to the strip material used, there is no suggestion that the strip material is of a nature which will resist the action of liquids or, in other words, constitute spot material. As a matter of fact, it is a material "capable of being marked or written upon " (spec. p. 5, l. 42) and, therefore, is gas penetrable and is not impervious to liquid.

The patent to Landfear (303,391) does not anticipate the claims for the same reasons as the other references. It shows a machine for applying discs to the ends of spools and obviously the material employed is not spot material, i. e. of a character adapted to protect the cushion of a cap. Furthermore, the adhesive is not water resistant.

Respectfully,

Coleman, Sughrue & Oberly

Attorneys.

JJD:C

1284

1528

NOV 25 30

Stamp Cancelled NOV 15 30

Paper Returned.

SUPPLEMENTAL OATH

Albin H. Warth,
PROCESS OF PRODUCING CLOSURES,
Filed January 7, 1927,
Serial No. 159,743.

U. S. PATENT OFFICE
DEC 3 1930
DIVISION

CITY OF BALTIMORE)
:ss.
STATE OF MARYLAND)

ALBIN H. WARTH, whose application for Letters Patent for Improvements in Process of Producing Closures, was filed Jan. 7, 1927, Serial No. 159,743, being duly sworn, deposes and says that he has read the attached amendment and that the subject matter thereof was part of his invention, was invented before he filed his original application, above identified, for such invention, was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

Albin H. Warth

Subscribed and sworn to before me, a Notary Public, this 14th day of November, 1930.

Benjamin L. Bourne
Notary Public.

1285

1529

Appeal No. 135 Paper No. 6

Decision.

U. S. PATENT OFFICE
BOARD OF APPEALS
DEC - 2 1930
MAILED

Appeal No. 135 MCV

IN THE UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte Albin H. Warth

Application for Patent filed January 7, 1927, Serial No. 159,743. Process of Producing Closures.

Messrs. Cushman, Bryant & Darby for applicant.

In view of the examiner's written endorsement that a proposed substitute claim is in his opinion patentable and that the accompanying amendment, filed November 25, 1930, would place the case in condition for allowance, the appeal is dismissed and the case remanded to the examiner for consideration of the amendment and for such action as he deems proper.

Assistant Commissioner
Examiner-in-Chief
Examiner-in-Chief
Board of Appeals

December 2, 1930

1286

1530

Ed. 17. 20.

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth;
PROCESS OF PRODUCING CLOSURES,
Filed January 7, 1927,
Serial No. 159,743.

APPLICATION DIV. DEC 11 30 PATENT OFFICE

U. S. PATENT OFFICE
DEC 11 1930
DIVISION 14

- - -

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendment in the above entitled application.

IN THE CLAIM

Apply the numeral "10" to the claim of record, and add the following claim:

10. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

(sig.)

1287.

1531

_R_E_M_A_R_K_S_

The foregoing claim contains all of the limitations of the claim allowed, but is somewhat more specific, in that it is limited to the use of metal foil spot material and the production of a metal foil spot. In other words, this claim is limited to a production of one species of the center spot type of cap. In view of the fact that the claim is in no sense broader of the allowed claim, but is obviously more specific, it is thought that it may be entered without further search.

Respectfully,

Cushman Darby & Cushman
Attorneys.

JJD:U

1288

1532

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON D. C.

Div. 14
MC

'51

Serial No. 159,743

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

December 11, 1930

Albin H. Warth, Assor. etc.

Your APPLICATION for a patent for an IMPROVEMENT in

PROCESS OF PRODUCING CLOSURES

filed Jan. 7, 1927 has been examined and ALLOWED with 2 claims.

The final fee, TWENTY-FIVE DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $25 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $25 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

Cushman, Bryant & Darby
Washington Loan & Trust Bldg.
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED

1289

1533

DEC 11-30 103972 [illegible] 25.00

MAIL DIVISION DEC 11 '30 U.S. PATENT OFFICE

327.

FINAL FEE PAID TO THE COMMISSIONER OF PATENTS

(Be careful to give correct Serial No.)

Serial No. 159,743

INVENTOR:

Albin H. Warth

PATENT TO BE ISSUED TO

As per record

NAME OF INVENTION, AS ALLOWED:

Process of Producing Closures

DATE OF PAYMENT:

December 11, 1930

FEE:

Final - 2 cls.

DATE OF FILING:

January 7, 1927

DATE OF CIRCULAR OF ALLOWANCE:

December 11, 1930

The Commissioner of Patents will please apply the accompanying fee as indicated above.

Cushman, Bryant & Darby

Attorney.

SEND PATENT TO

Attorneys

Final fees will not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

11—2979

BLANK

PAGE

1290

Jan. 6, 1931. A. H. WARTH 1,788,260

PROCESS OF PRODUCING CLOSURES

Filed Jan. 7, 1927

Fig. 1.

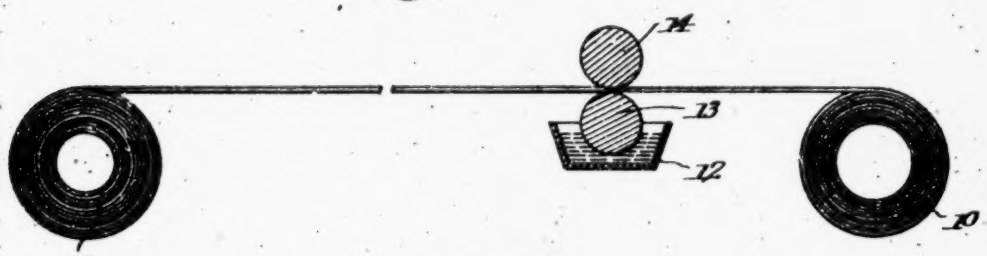


Fig. 2.

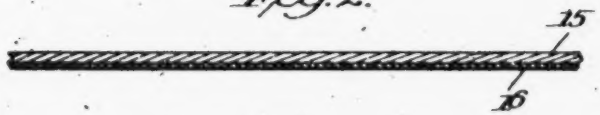


Fig. 3.

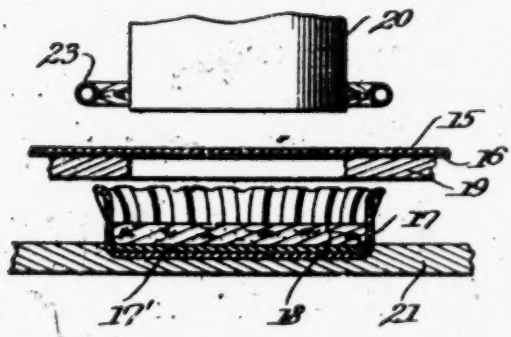


Fig. 4.

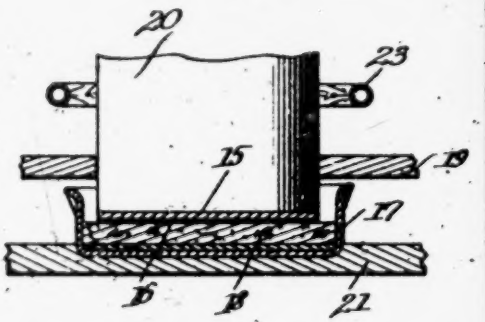


Fig. 5.

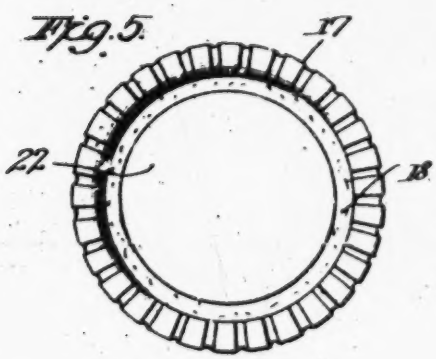
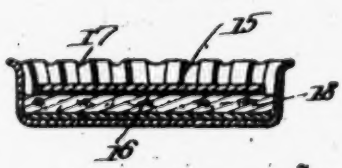


Fig. 6.



Inventor

Albin H. Warth.

By Cushman Bryant & Earle

Attorneys

BLANK

PAGE

BLANK

PAGE

Patented Jan. 6, 1931

1291

1,788,260

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CROWN CORK & SEAL COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

PROCESS OF PRODUCING CLOSURES

REISSUED

Application filed January 7, 1927. Serial No. 159,743.

This invention relates to a method of producing closures of the type in which a sealing disk has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shelf itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing

bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300° F. maintained for about 30 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots

are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17′; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally

disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

In testimony whereof, I have hereunto set my hand.

ALBIN H. WARTH.

1295

1539

115
80

27
4/2-28.

421

1927

CONTENTS.

1.	Application ..... papers.	26.	
2.	Rec. APR 16 1927	27.	
3.	Amend. A March 13 1928	28.	
4.	Power of Atty by Assignee Sept 29/28	29.	
5.	Appellees Jan 11 1929	30.	
6.	Brief B June 27, 1929	31.	
7.	Brief Appellees	32.	
8.	Appeal July 16-1930	33.	
9.	EXAMINER'S STATEMENT JUL 24 1930	34.	
10.	Letter AUG 6 1930	35.	
11.	Authority to Inspect Rec 7/31/30	36.	
12.	HEARING DEC 23 1930	37.	
13.	Rev. and Power of Atty by Assignee Nov 11/30	38.	
14.	Letter Nov 26/30	39.	
15.	Amend C - Applied for Nov. 25-1930	40.	
16.	Appeal Dismissed Dec 2. 1930	41.	
17.	Circuit Ct Dec 11, 1930	42.	
18.		43.	
19.		44.	
20.		45.	
21.		46.	
22.		47.	
23.		48.	
24.		49.	
25.		50.	

BLANK

PAGE

1296

DEFENDANT'S EXHIBIT J J J 1540

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper, Contents and Drawing, in the matter of the

Abandoned Application of

Albin H. Warth,

Filed May 6, 1929, Serial Number 360,895,

for

Improvement in Bottle Caps and the Method of Making Same.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this seventeenth day of December, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-ninth.

ATTEST:

Chief of Division.

Commissioner of Patents.

o11—9838
GOVERNMENT PRINTING OFFICE 1934

1297

1541

NUMBER (Series of 1925)
~~360~~ 5

PAT

1929 DATED ~~2-278-9~~

DIV. X 24 ~~56~~ 62 (EX'R'S BOOK) ~~158-199~~ 109 - (3 3)

ABANDONED 215-21-4

Name ALBIN H. WARTH

Assignor to Crown Cork & Seal Company, Inc., of New York, N.Y., a corp. of New York.

This application referred to in Patent No 1899783 Do not destroy (See order No. 3166, 400 O.G. 1)

of BALTIMORE

State of MARYLAND

DO NOT DETACH

Invention BOTTLE CAPS AND THE METHOD OF MAKING SAME

ORIGINAL	RENEWED
APPLICATION FILED COMPLETE MAY 6, 1929	50. 198
PAPERS OF APPLICATION FILED. Petition, Specification, Oath, First Fee $10, 1 sheets Drawings, MAY 6, 1929	Ntc 1/2a 133
Examined and passed for Issue ____, 192	Reexam'd and passed for Issue ____, 192
____ Exr. Div.	____ Exr. Div.
Notice of Allowance ____, 192 By Commissioner.	Notice of Allowance ____, 192 By Commissioner.
Final Fee ____, 192	Final Fee ____, 192

Attorney ~~FRANK T. WENTWORTH 41 PARK ROW NEW YORK N.Y.~~ Cushman, Bryant & Darby, Washington Loan & Trust Bldg., City

Associate Attorney American Security Bldg.

No. of Claims Allowed ____ Print Claims ____ In O. G. Class ____

Title as Allowed ____

1533
3

1921

1298

1542

UNITED STATES AND FOREIGN PATENTS AND TRADE MARKS

RECD MAY - 6 1929 C.C.U.S.PAT.OFFICE

FRANK D. WENTWORTH
PATENT AND TRADE MARK CAUSES
41 PARK ROW, NEW YORK

CABLE ADDRESS: "FROWENPAT" NEW YORK
TELEPHONE: 1936 CORTLANDT

May 4th 1929.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

360895

Enclosed herewith is application of Albin H. Warth, for United States Letters Patent upon Improvements in Bottle Caps and the Method of Making Same, together with check including the Government filing fee thereon.

Respectfully,

Frank D. Wentworth

CB

ENC.

U.S.PATENT OFFICE
MAY 11 1929
DIVISION 14

1299

1543

MAIL DIVISION MAY - 6 29 U.S. PATENT OFFICE

U.S PATENT OFFICE
MAY 11 1929
DIVISION 14

360895 - 1

TO THE COMMISSIONER OF PATENTS:-

Your petitioner, Albin H. Warth, a citizen of the United States, residing at Baltimore, in the County of Baltimore and State of Maryland, (whose Post Office address is 38 York Court, Baltimore, Md.) prays that Letters Patent may be granted to him for the new and useful Improvements in Bottle Caps and the Method of Making Same, set forth in the annexed specification; and he hereby appoints Frank T. Wentworth, of 41 Park Row, in the Borough of Manhattan, City, County and State of New York, his attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the patent, and to transact all business in the Patent Office connected therewith.

Signed at the County of Baltimore and State of Maryland, this 1st day of May 1929.

Albin H. Warth

TO ALL WHOM IT MAY CONCERN

Be it known that I, Albin H. Warth, a citizen of the United States, residing at Baltimore, in the County of Baltimore and State of Maryland, have invented certain new and useful Improvements in Bottle Caps and the Method of Making Same, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to bottle caps and the method of making same, and more particularly to a cap consisting of a metallic shell containing a cushion disk having what is known as a protecting center disk, and to the method of applying this center disk.

Bottle caps of the type to which my invention relates have heretofore been extensively used for sealing bottles containing mineral waters and other fluids having a deleterious action upon the cushion disk within the cap, particularly when this disk is made of composition cork. Ordinarily the facing disk has been made of tin foil cemented or otherwise attached directly to the cushion disk, or secured thereto by means of a fibrous backing having applied thereto a dry adhesive made tacky by means of a thin film of moisture applied to the cushion disk.

It has been attempted to secure the facing disk upon the cushion disk by means of a liquid cement, but this has proven impracticable because, in order to secure a satisfactory bond, it was necessary to apply the adhesive in a quantity having such thickness that, upon the application of pressure to secure the desired intimate relation between the facing disk and the cushion disk, there was a tendency of the disk to slide into an eccentric position in relation to the disk. In order

to permit the effective sealing of a bottle with a cap having a tin center or other protective facing, it is essential that the facing disk be accurately centered in relation to the cushion disk so as to avoid any possibility of the neck of the bottle sealing against the facing disk, since this would result in the presence of minute channels or voids at the point of contact of the facing disk with the neck of the bottle. Furthermore, at the points where the line of contact crossed the periphery of the disk, there would be exposure of a small area of the cushion disk to the contents of the bottle.

With the above conditions in mind, the object of my present invention is to provide a bottle cap having a protecting center disk secured in position by a fusible medium devoid of moisture, and thus avoid any possibility of slippage of the disk while pressing it into the necessary intimate relation with the cushion disk.

The medium used for securing the facing disk in place is of itself insoluble and acid resisting and, being fusible at low temperatures, will form a very thin coating between the facing disk and the cork so as to preclude the possibility, in the event of imperfections in the facing disk, of the cork being attacked by the fluid contents of a bottle.

The cementing medium may be readily handled, is not affected by ordinary changes of temperature or atmospheric conditions, may be readily cut to size simultaneously with the cutting of the facing disk so as to secure a bonding stratum co-extensive with the area of the facing disk, and may be quickly fused to secure the desired bonding action between the facing disk and the cushion disk.

In addition to the foregoing characteristics, I am enabled to effectively use a facing disk of fibrous material,

since the nature of the bonding medium is such as to firmly adhere to hard finished papers as well as to natural cork or composition cork.

In the commercial production of such caps it is essential that the facing disk, during production, be cut from a strip of the material, and since the edges of the disk cannot be protected by the same material used for waterproofing the surface of the disk, I have found it desirable, after the application of the facing disk, to apply, to the entire surface of the cap exposed interiorly of the cap, a very thin protecting surfacing of water repellant material. This not only serves to prevent adherence of the cork to the neck of the bottle, and to exclude atmospheric air from the exposed portions of the cushion disk before the cap has been applied to a bottle so as to prevent darkening of the cork by oxidation, but will at the same time, protect the perimeter of the center facing disk to an extent to minimize likelihood of the absorption of moisture at the edge of the disk.

Bottle caps of the general type to which my invention relates must be produced at a very low cost, and the various materials entering into same and the method of assembling and finishing are matters of great desideratum.

The herein described method of making the bottle cap of my invention relates merely to the manner of applying the center facing disk and finishing the cap, it being understood that the assembling of the metal shell and the mounting of the cushion disk therein are entirely independent operations, preparatory to the practicing of the method of my present invention.

The invention consists primarily in a bottle cap embodying therein a metallic shell, a cushion disk within said

shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk; and in such other novel characteristics as are hereinafter set forth and described, and to the method of making said caps, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a bottom plan view upon an enlarged scale of a bottle cap embodying the invention;

Fig. 2 is a section on the line 2-2 of Fig. 1;

Fig. 3 is a vertical section illustrating the first stage of applying the center disk to the cushion disk;

Fig. 4 is a similar view illustrating the final stage; and

Fig. 5 is a view illustrating a stage intermediate those illustrated in Figs. 1 and 2, used when it is desired to apply a wax finish to the cushion disk.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, notwithstanding that the caps themselves are shown upon an enlarged scale, the dimensions of the facing disk and the intermediate bonding stratum are of greatly increased thickness as compared with the actual materials used, even when compared with the enlarged scale of the other parts of the cap.

A bottle cap embodying the invention consists of the usual metallic shell a having a fluted skirt b. Secured within this shell is a cushion disk c which may be either of natu-

ral, or of composition, cork. Composition cork is more extensively used than natural cork, and the employment of a tin or other center facing disk is particularly desirable with composition cork cushion disks, since the contents of a bottle will more readily attack the binder of the composition cork than it will natural cork.

It is essential, to secure a reliable seal, particularly with carbonated beverages, that the neck of the bottle seal directly against the cushion disk, and not against the center facing disk. This is generally understood, and I follow, in the bottle cap of my present invention, the old practice of using a center facing disk d, the diameter of which is relatively less than that of the cushion disk, so that when the cap is applied to a bottle, the lip of the bottle will be positioned between the facing disk and the skirt b, the contacting area being such as to bring the facing disk to a point at the inner edge of such contacting area.

While heretofore tin centers have been extensively used, it has been found impracticable to use paper disks for this purpose, because in order to make them impervious to gas, and non-absorbent, the finish of the paper had to be such as prevented the formation of a sufficiently good bond between the facing disk and the cushion disk to permit the practical commercial production of such caps.

To correct this condition, it has long been the practice to bond a metal foil, such as tin, to a fibrous backing, to which latter the cement would firmly anchor. With this construction of the facing disk it was the practice to apply a dry adhesive to the fibrous backing strip and to make this adhesive tacky by the application of moisture to the cushion disk immediately prior to the coating of the facing strip and the

application of the disk cut therefrom to the cushion disk.

While caps, having a facing disk of the character immediately above described, have been extensively used, their production cost, as compared with the required low cost of such caps, has been very high.

In the cap of my invention, the center disk d is composed of a glazed hard paper, such as is generally known as express paper, sulphite paper or bleached Kraft paper having a waterleaf finish. Such papers are, of themselves, independently of the finish, fairly non-absorbent, and when required for pasting purposes, are usually provided with a dry gummed surface. The process of producing such gummed paper results in a curl in the paper.

While such hard tough papers are extremely desirable because of their inherent non-absorbent, gas impervious qualities, their use in bottle caps of the type to which my invention relates was impracticable, prior to my invention, because of the difficulties of feeding and cutting previously gummed paper, and of cementing same to the cushion disk.

In the cap of my invention, however, to obviate these difficulties, I use ungummed paper of the type above referred to, and secure it to the cushion disk by means of a disk of what is known as gutta-percha tissue, which material, in strip form, may readily be handled in a machine and collated with a facing disk paper strip so as to permit a disk of the paper and a disk of the gutta-percha to be simultaneously cut by the same dies. This not only simplifies the production of the cap, but results in a bonding stratum g between the facing disk and the cushion disk co-extensive in area with the facing disk itself. The strip of paper from which the disk d is cut is indicated at d' while the strip of gutta-percha forming the

stratum g is indicated at g'.

Gutta-percha is particularly desirable as a bonding medium, not only because it ensures the distribution of the bonding stratum throughout the entire area of the facing disk, but because it will readily adhere, when softened to the desired extent, to the cork or composition cork, and to hard paper. Furthermore, it possesses the qualities of being non-absorbent and non-impervious to gases. The tissue itself is very thin, about two thousandths of an inch, and when softened, instantly adheres to the cork and to the paper, and is not subject to side sliding or slippage, such as liquid cements. The gutta-percha is not affected by fruit acids, minerals, CO_2 or other ingredients present in the fluid contents of bottles with which such caps are designed to be used.

The gutta-percha may be fused or melted at temperatures sufficiently low to avoid injury to the other previously assembled portions of the cap, and will return to its former solid form at normal temperatures with considerable rapidity.

In the finished cap, particularly when such caps are desired for use with spring water or mineral waters, it is desirable, after the application of the center disk, to apply a very thin superficial coating f of water repellant material, such as paraffin, Ceresin or other waxes, throughout the exposed faces of the cushion and center disk. This coating serves to prevent adherence of the cushion disk to the neck of the bottle, due to the action of the water upon the cork or upon the binder of composition cork, and also serves to more or less effectively seal the raw edges of the paper of the center disk and prevent possibility of the softening of the paper and its ultimate disintegration as a result of a slow absorption

of moisture through such raw edges.

A cap embodying the invention lends itself to rapid production methods, which will now be described.

Preparatory to the application of the center disk d to the cushion disk c, the latter is completely assembled in relation to the shell a. The caps, completely assembled, may be rapidly fed in relation to cutting dies g and h, and as they are brought under these dies, superimposed strips d' of paper, and c' of gutta-percha tissue are fed between the die plate h and the punch g. With the descent of the punch g, disks are simultaneously cut from the strip d' and c', such disks being pressed by the punch upon the disk d with their centers concentric with each other and with said disk d. The punch g is maintained at an elevated temperature required to melt the gutta-percha of the strip c' and make it tacky, so that substantially simultaneously with the pressing of the disks d and c against the disk c, the disks d and c will be bonded together with sufficient permanency to ensure accurate positioning of the disk c and avoid likelihood of displacement of same thereafter. It is preferable, after the disk c has thus been bonded to the disk d, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta-percha and a close adhesion of every portion of the disk c to the disk d.

For this purpose I have shown a carrier i and a heated spring pressed plunger j.

In the drawings, I have shown the punch g and the plunger j as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed.

It will be noted that by following the methods above specified, the heat necessary for the fusing of the gutta-percha

is applied at the surface of the disk d, and that the time intervals are sufficiently short to avoid any substantial absorption of heat by the cushion disk c. The very thin gutta-percha tissue will melt very rapidly, and after the removal of the punch g or plunger j will solidify with great rapidity and form a substantially imperceptible stratum intermediate the disks c and d.

If it is desired to provide the cap with a superficial wax surfacing throughout the area of the cushion disk c and center disk d, a very small quantity of wax, such as paraffin or Ceresin wax or wax compounds, may be delivered upon said disks within the shell a following the application of the disk d to the disk c, and prior to the application of heat and pressure through the medium of the carrier j and plunger j. Such heat and pressure will spread a drop of wax in a very thin film about the entire exposed face of the two disks, the raw edge of the disk d also being coated with this wax.

The thickness of the disk d will be approximately five thousandths of an inch, while the thickness of the binding stratum s, in the ultimate product, will be relatively less than the thickness of the gutta-percha tissue, or a mere fraction of a thousandth of an inch. The wax surface stratum will also be but a mere fraction of a thousandth of an inch, and is not perceptible to the eye, although sensible to the touch.

The glazed face of the disk d does not require a wax surfacing, and, so far as I have been able to determine, most of the wax is expressed from this surface and forced from the disk to the exposed area of the cushion disk c.

If it is desired to provide the cap with a wax surface as described, it is essential that this surface be applied after the center disk d has been assembled in the cap, since

the presence of wax upon the surface of the cushion disk c, prior to the application of the disk d, would prevent a proper bonding of this disk d to the cushion disk c.

The glazed surface upon the strip g' consists of a waterproof compound consisting of resin, Chinawood oil and a drier, and containing a plasticizer.

Express paper, sulphite paper and bleached Kraft paper are all well known commercial products.

It is not my intention to limit the invention to the precise details herein described, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:-

1:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk.

2:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, having a glazed surface exposed inwardly of the shell, and a thin stratum of an insoluble fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk.

3:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than,

and concentric with, said cushion disk, a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk, and a thin film of wax upon the exposed surface of said cushion disk and about the edge of said facing disk.

4:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of gutta-percha co-extensive in area with said facing disk, between said facing disk and said cushion disk.

5:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, having a glazed surface exposed inwardly of the shell, and a thin stratum of gutta-percha co-extensive in area with said facing disk, between said facing disk and said cushion disk.

6:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, a thin stratum of gutta-percha co-extensive in area with said facing disk, between said facing disk and said cushion disk, and a thin film of wax upon the exposed surface of said cushion disk and about the edge of said facing disk.

7:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, and applying heat

sufficient to fuse said cementitious material while subjecting said disk to pressure.

8:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said cementitious material while subjecting said disk to pressure, and thereafter subjecting said disk to a continuing heat and pressure.

9:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said cementitious material while subjecting said disk to pressure, delivering a small quantity of wax upon said disks, and thereafter subjecting said disk to a continuing heat and pressure.

10:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta-percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, and applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure.

11:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta-percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure,

and thereafter subjecting said disk to a continuing heat and pressure.

12:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta-percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure, delivering a small quantity of wax upon said disks, and thereafter subjecting said disk to a continuing heat and pressure.

In witness whereof I have hereunto affixed my signature, in the presence of two subscribing witnesses, this 1st day of May 1929.

Otto H. Wuth

WITNESSES:-

Miriam Stover

M. Luther

333/17

1313

1557

STATE OF MARYLAND :

: ss.-

COUNTY OF BALTIMORE :

Albin H. Warth, the above named petitioner, being duly sworn, deposes and says that he is a citizen of the United States, and a resident of Baltimore, in the County of Baltimore and State of Maryland; that he verily believes himself to be the original, first and sole inventor of the Improvements in Bottle Caps and the Method of Making Same, described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication, in any country, before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; and that no application for patent upon said invention has been filed by him or his representatives or assigns in any country foreign to the United States.

Albin H. Warth

Subscribed and sworn to before me, this 1st day of May 1929.

[illegible]

NOTARY PUBLIC

MY COMMISSION EXPIRES MAY 6, 1930

333/18

1314

1558

360895

Fig. 1.

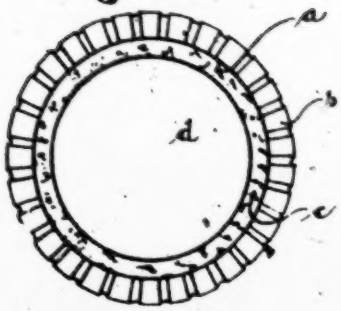


Fig. 2.



Fig. 3.

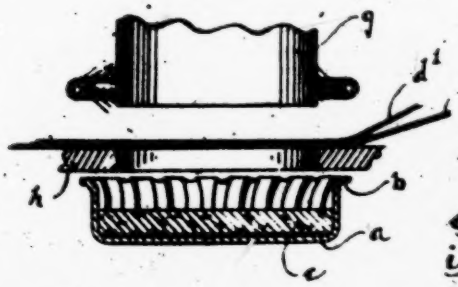


Fig. 4.

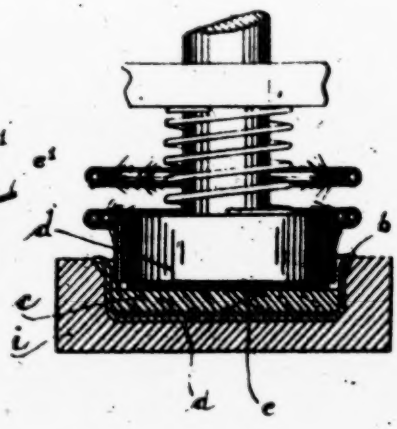
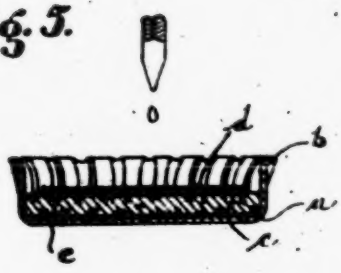


Fig. 5.



Albion A. Wardle.

INVENTOR

BY Frank P. Wentworth

his ATTORNEY.

1315

1559

Div. 14 Room 103 Annex B/MC Paper No. 2

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications concerning this application should give the serial number, date of filing, and name of the applicant

MAILED JAN 23 1930

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

January 23, 1930

Applicant: Albin H. Warth

Frank T. Wentworth
41 Park Row
New York, N. Y.

Ser. No. 360,895
Filed May 6, 1929
For BOTTLE CAPS AND THE METHOD OF MAKING SAME.

This case has been examined and the following art is cited:

Alberti et al	1,401,300	Dec. 27, 1921	113-80
Taliaferro	1,486,937	Mar. 18, 1924	" "
Alberti	1,199,026	Sept. 9, 1916	215-39
Stahl	1,215,737	Feb. 13, 1917	" "

This application contains claims to two independent inventions.

Claims 1 to 6 cover the bottle cap classifiable in Class 215-39 in Division 40, while claims 7 to 12 cover the method of making bottle caps, classifiable in Class 113-80 in Division 14. Cancelled July 23

The caps covered by claims 7 to 12 may be made in other ways than by the method of claims 1 to 6.

Division is required between these two groups of claims.

As indicating the state of the art after a cursory examination, attention is called to the above cited patents.

N. J. Brumbaugh

Examiner.

JFB

1316

1560

MAIL DIVISION
FEB 26 30
U.S. PATENT OFFICE

U.S. PATENT OFFICE
FEB 27 1930
DIVISION 14

3/a-1

Room 102 Annex. Paper No. 3.

In the matter of the application of
Albin H. Warth, for Bottle Caps and the Method of Making Same,
Filed May 6th 1929, Serial No. 360,895.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

In response to the communication of Jan. 23rd 1930, from the Examiner in charge of the above entitled matter, applicant elects to prosecute the present application as to claims 1 to 6. Cancel claims 7 to 12. An early action on the merits is respectfully requested.

In order to expedite the prosecution of the case, it is desired to point out that the patent to Alberti et al, No. 1,401,300 relates to a machine for producing a cap similar to that shown in the Alberti patent No. 1,199,026. Both of these patents are owned by applicant's assignee. The Alberti patent No. 1,199,026 discloses a center spot cap, the facing disk 15 of which is a metal foil secured to the cork cushion disk 13 by means of an albuminous cement. This has nothing to do with the claims of the present application.

The Stahl patent, No. 1,215,737 refers to an air space 14, within the shell of which is a paper cap 12, an annular sealing disk 11, a laminated facing consisting of a layer of jute paper stock, a layer of gutta-percha and a thin layer of paper tissue. This bears no resemblance to the cap of the application.

The patent to Taliaferro relates to a method of forming a bottle cap having an unvulcanized rubber composition cushion. This has nothing to do with the structure of the application.

1317

1561

It is thought, in view of the foregoing, that the claims are clearly allowable over the art referred to by the Examiner.

Respectfully submitted,

Alvin D. Wait

by Frank P. Wentworth
his attorney.

New York, N. Y.
Feb. 25th 1930.

1318

1562

Div. 40 Room 864-Annex

Paper No. 4

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON June 28, 1930.

Heil/M

FILED
JUN 28 1930

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

Applicant: A.H. Warth,

Ser. No. 360,895,
Filed May 6, 1929,
For BOTTLE CAPS AND THE METHOD OF MAKING SAME.

Frank T. Wentworth,
41 Park Row,
New York, N.Y.

Responsive to amendment filed Feb. 26, 1930.

Claims 1, 2, 3, 4, 5 and 6 are novel over Alberti of record in that gutta-percha is used as a sealing means. Stahl in Fig. 2, 18 shows gutta-percha as a sealing means. Also the fibrous facing disc, glazed surface of the shell, and wax film on the cushion disc, are novel over Alberti, but no new results or advantages have been pointed out for these changes. The metallic facing disc of Alberti accomplishes the same work as the fibrous disc in the claim. To improve the Alberti device by adding to it the novel feature of Stahl, together with the novel features for which no advantage is seen, would amount to an aggregation of old ideas. These claims are therefore rejected over the state of the art.

J. R. H.

E. L. Mills
Act. EXAMINER. 331/23

1319

1563

J-

Crown Cork & Seal Company, Inc.

Baltimore, Md.

NEW PROCESS CORK CO Inc
THE CROWN CORK & SEAL CO
OF BALTIMORE CITY
CONSOLIDATED

ATTORNEY'S ROOM
AUG 6 1930
U.S. PATENT OFFICE

August 5th, 1930.

IN THE UNITED STATES PATENT OFFICE.

40

Name: Albin H. Warth

Serial No: 360895

Filing Date: May 6th, 1929.

Crown Cork and Seal Company, Inc., assignee of record of the entire right, title and interest in the above entitled application,

hereby gives

Messrs. Cushman, Brant & Darby, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, whose registry number is 7196, access to the above application with power to inspect the application file in the Patent Office and make copies of all papers.

O.K.

CROWN CORK & SEAL COMPANY, INC.,

By

Vice-President.

THE PERFORMANCE OF ALL AGREEMENTS ON OUR PART IS CONTINGENT UPON STRIKES, FIRES, ACCIDENTS, AND OTHER CAUSES BEYOND OUR CONTROL.

1320

1564

U. S. PATENT OFFICE

SEP 2 1 30

ORIG. 30 PAPER No. 6

APPLICATION DIV. U.S. PATENT OFFICE AUG 30 30

IN THE UNITED STATES PATENT OFFICE.

Entered by MLC

A. H. Warth,

BOTTLE CAPS AND THE METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895.

Division 40.

- - -

August 29, 1930.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

In response to the Official Action of June 28, 1930, kindly amend the above entitled application as follows:

IN THE SPECIFICATION:

Page 10:

Line 6, after "plasticiser" insert --In other words the paper is varnished--.

IN THE CLAIMS:

Add the following:-

--15. A facing for bottle caps of the type employing a cushion layer comprising glazed, hard paper having on one exposed side a coating of varnish, and on the other a backing of gutta-percha adapted to adhesively unite the facing to the cushion layer.

1321

1565

14. In a bottle cap of the type which includes an interior layer of cushion material, a facing overlying said layer and consisting of hard, glazed paper having on one exposed side a coating of varnish, and on the other side facing said layer a backing of gutta-percha adhesively united to both the layer and paper.

15. As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper, and a coating of gutta-percha on the other surface.--

Add'l

REMARKS

In response to the last Official action, Counsel desire to point out that the use as a liner of a glazed, hard paper varnished on one surface and having a gutta-percha backing or coating has been recognized as patentable; attention is called to the patent to Lange No 1,758,610. Claim 15, added by this amendment is the claim of the Lange patent with which an interference is requested.

The attention of the Examiner is directed to page 8 of the specification, which describes the method of stamping or punching the discs of gutta-percha and paper by means of a heated plunger, as follows:

> "Preparatory to the application of the center disk d to the cushion disk c, the latter is completely assembled in relation to the shell a. The caps, completely assembled, may be rapidly fed in relation to cutting dies g and h, and as they are brought under these dies, superimposed strips d' of paper, and e' of gutta-percha tissue are fed between the die plate h and the punch g. With the descent of the punch g, disks are simultaneously cut from the strip d' and e', such disks being pressed by the punch upon the disk d with their centers concentric with each other and with said disk d."

In this manner, the paper and gutta-percha are united by the heat and pressure applied by the punch and attention is directed to the statement immediately following:

> "The punch g is maintained at an elevated temperature required to melt the gutta-percha of the strip e' and make it tacky, so that substantially simultaneously with the pressing of the disks d and g against the disk c, the disks d and g will be bonded together with sufficient permanency to insure accurate positioning of the disk g and avoid likelihood of displacement of same thereafter".

In other words, applicant forms a composite liner in this manner by adhesively uniting with the gutta-percha, as set forth, glazed hard paper, as described on page 6, beginning at line 6: -

> "In the cap of my invention, the center disk d is composed of a glazed hard paper, such as is generally known as express paper, sulphite paper or bleached Kraft paper having a waterleaf finish".

This paper has its exposed surface coated with a varnish, as described on page 10 of the specification, line 4, in the sentence reading:-

> "The glazed surface upon the strip e' consists of a waterproof compound consisting of resin, Chinawood oil and a drier and containing a plasticiser".

Lange describes not only the use of varnished glazed paper but also the uniting of the same with gutta-percha tissue. Note the following statement in the patent specification on Page 1, line

> "The cork insert or liner may be protected by a sheet of varnished paper, the unvarnished surface of which is bonded to the cork by a material such as gutta-percha. The gutta-percha in sheet form may be applied to the unvarnished surface of the sheet of varnished paper and blanks may be stamped from this composite material and applied to the cork insert by hot pressing."

Obviously, applicant goes further than Lange and effects, by hot pressing, an adhesive uniting of the gutta-percha sheet

with the paper almost simultaneously with the uniting of gutta-percha with the cushion layer of the cap. This is not, of course, disclosed by Langé and has the advantage of making the entire product, including both the liner and cap, in a single operation.

But it is apparent that, so far as the broad idea is concerned, both parties describe and claim the same steps and produce the same final product to wit: a liner consisting of (a) hard glazed paper, (b) varnish on one surface of the paper, and (c) a coating of gutta-percha on the other surface, the gutta-percha serving to adhesively unite the liner to the cushion layer of a cap.

Respectfully,

Cushman, Byron & Brady
Attorneys.

MC:KB

1324

1568

APPLICATION DIV
AUG 29 30
U.S. PATENT OFFICE

U. S. PATENT OFFICE
AUG 30 1930
DIV. 40 PAPER No. 7

Applicant: Albin H. Warth

Invention: Bottle Caps and the method of making same.

Filed: May 5, 1924.

Ser. No. 360895

DOCKET DIVISION
SEP 8 1930
U.S. PATENT OFFICE

HON. COMMISSIONER OF PATENTS,

SIR:

Please recognize as ~~associate~~ attorneys in the above named case, with full powers of prosecution, Messrs. Cushman, Bryant & Darby, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, (Reg. No. 7196), Washington Loan & Trust Co. Building, Washington, D. C.

All former powers are hereby revoked.

Respectfully,
Crown Cork & Seal Company, Inc.

H. Sperling
Vice Pres.

Accepted
SEP 10 1930
J. E. Robertson
Commissioner.

Aug 27th 1930

1325

1569

KEG 000 48

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON September 11, 1930.

Cushman, Bryant & Darby
Washington Loan & Trust Bldg.,
Washington, D. C.

Applicant Albin H. Warth

Serial No. 360,895

Filed May 6, 1929

For Bottle Caps and the Method of Making Same

Div. 40.

In this case your power of attorney has been accepted.

Respectfully,

Thomas E. Robertson
Commissioner.

by assignee
Revoking power of attorney

to

Frank T. Wentworth
41 Park Row
New York, N. Y.

1570

Div. 50 Room 322

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

I/K

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 9

All communications concerning this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application.

MAILED

OCT 7 1930

Thomas E. Robertson
Commissioner of Patents.

Applicant: Albin H. Warth

Cushman, Bryant & Darby,
Washington Loan & Trust Bldg.,
Washington, D. C.

Ser. No. 360,895
Filed May 6, 1929
For Bottle Caps and the Method of Making Same

In response to communication filed Aug. 30, 1930:-

Additional reference made of record:-

Lange 1,758,610 May 13, 1930:- 91-68K

This application has been transferred to this division (Division 50) solely for the purpose of deciding the interference issue raised by applicant by copying the claim of the above cited patent.

Claim 15 is rejected to applicant for the reason that he cannot properly make his claim.

First, the said claims calls for an "article of manufacture"; i. e. the liner exists as such independently of the assembled cap. In applicant's construction, the caps, completely assembled, are fed to the cutting dies g and h, and, as they are brought under these dies, superimposed strips d' of paper, and e' of gutta percha tissue are fed between the die plate h and the punch g. The punch g is mantained at an elevated temperature whereby the gutta percha tissue is rendered tacky and the disc d is bonded to the cork cushion c. The patentee, on the other hand, first produces the liner and then applies it to the cork insert by hot pressing (page 1, lines 40 to 45). Obviously, then, applicant, in view of his disclosure, does not have a structure which responds to the "article of manufacture" of said Claim 15.

Secondly, the claim recites a "coating of gutta percha". Referring to the specification of the patent it is found that the gutta percha is applied in the form of a solution, the solvent being

1327

1571

suitably driven off to leave f thin film of gutta percha. Patentee specifically refers to the objections and disadvantages resulting from the use of gutta percha in thin sheet form (page 3, lines 41 to 56) and seeks to escape these objectionable results by applying the adhesive in liquid form, which is expressed in the claim by the word "coating". Applicant does not apply the gutta percha in liquid form as a coating but rather in thin sheet form. Consequently, this claim does not read upon applicant's disclosure inasmuch as he has disclosed no application of the adhesive in liquid form to provide a coating.

In accordance with the practice enunciated in ex parte Weber and Woodford, C. D. 1919, 65 , applicant is given twenty (20) days from the date of mailing of this letter to respond to this action.

E. Blake

Examiner.

1328

1572

Letter #10

APPLICATION DIV. U.S. PATENT OFFICE OCT 27 30

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS AND METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895.

U. S. PATENT OFFICE
OCT 28 1930
DIVISION 50

Division 50.

October 27, 1930.

Hon. Commissioner of Patents,

Washington, D. C.

Sir:-

In response to the Official action of October 7, 1930, this application is submitted for reconsideration.

The Examiner states that the applicant cannot make claim 15 for two reasons:

First: The applicant does not apply a gutta percha coating in the form of a solution comprising a solvent which dries out to precipitate a thin film of gutta percha; whereas the term "coating", as used in the claim means gutta percha applied in liquid or solution form with a solvent.

Second: Applicant does not disclose an article of manufacture, i. e., a liner existing as such independently of an assembled cap.

It is fundamental that claims presented in an application must be given the broadest interpretation to which they are reasonably susceptible; and this is particularly true when there is involved a question of interference. The Examiner's attention is directed to

the decision of the Court of Appeals in the District of Columbia in In re Levy, 2 Fed. (2d) 939. In this case the applicant, Levy, sought an interference with the Armstrong patent No. 1,342,885, and the Court said:

> "(1) The Assistant Commissioner ruled that Armstrong had in mind the employment of very high frequency, and he therefore read that limitation into the claims. But, over and over again, we have ruled that claims must be given the broadest interpretation which they reasonably will support, and that a party will not be permitted to narrow his claim to suit the exigencies of a particular situation. Miel v. Young, 29 App. D. C. 481; Lindmark v. Hodgkinson, 31 App. D. C. 612; Cox v. Headley, 48 App. D. C. 341, 265 F. 981. The party who states his claims before the Patent Office in broad language is not in a position, when thrown into interference, to read limitations into them. The reason is obvious. If he has asked too much, he may reform his claims in an appropriate proceeding. When he takes claims broader than his invention, however, he thereby is enabled unduly to harass the public."

Not only must the claims presented by the applicant be given the broadest possible interpretation their terms can properly support, but every doubt must be resolved in favor of the applicant's right to make such a claim. In the same case, the Court of Appeals emphasized this in the following language:

> "(2, 3) It appearing that the Assistant Commissioner failed to give these claims the broad interpretation of which they reasonably were capable, and that when so interpreted they probably would have been allowable to the applicant, we follow our usual course and resolve any doubt in applicant's favor."

At this point we desire to make clear that we are not urging that the Examiner broadly interpret the terms in the Lange claim, but merely that he must

broadly interpret the claim which the applicant presents. Since this claim is identical with the claim of the patent, we do not see how the Examiner can properly avoid declaring an interference.

"COATING" IS A GENERIC TERM;
IT APPLIES TO ANY COVERING LAYER.

It being clear that the claim (15) must be interpreted as broadly as its terms will reasonably permit, it seems proper to inquire, first, what is the usual meaning of the word "coating".

We will refer to (A) the dictionary definitions of the term, and (B) the accepted meaning of the term in the bottle cap art.

A. Webster's New International Dictionary defines:

coating: (1) a coat, or covering; a layer of any substance as a cover or protection;

coat: n. (7) a layer of any substance covering another;

coat: v. to cover with a layer of any substance.

Collier's New Dictionary of the English Language (57th Edition) contains the following definition:

coat: a thin layer and integument.

B. It is customary in this art to define as a coating, a stratum of rubber or gutta percha, which is disposed in the identical position disclosed by the applicant and applied in a similar manner. For example, attention is called to the patent to Koch, No. 1,238,156, August 28, 1917. This patent shows a laminated liner comprising (1) a layer C of gutta percha, (2) a layer D

of paper, (3) a layer E of soft vulcanized rubber, and (4) a layer F of metal foil. These various layers are first inserted in the cap, and then, when properly arranged, the cap is heated in an oven, so that the gutta percha and rubber soften. The gutta percha melts and adheres both to the cork disc and to the paper. This is described in the specification, p. 1, lines 64-95.

The claims of the Koch patent define the layer C of gutta percha as a "coating". For example, claim 3 defines it as "a fusible coating or layer of gutta percha applied to the inner side of said sheet". Claim 4 also refers to the gutta percha as a coating.

APPLICANT'S GUTTA PERCHA IS A "COATING".

If the Examiner will now refer to the disclosure in this application, it will be clear to him that this application fully supports the ordinary meaning of the term "coating" as defined in the dictionary, and, furthermore, describes a coating in exactly the sense this term is used in the art, as indicated by the Koch patent.

The specification makes clear that the gutta percha spot is positioned beneath the paper and that the descent of the heated punch melts the gutta percha and makes it tacky. This causes the gutta percha to be bonded or united to the paper. The specification says:

> "simultaneously with the pressing of the discs 1 and 2 - - the discs 1 and 2 will be bonded together with sufficient permanency to ensure accurate positioning of the disc 2 - -".

To emphasize more fully the bonded, adhesive relation of the gutta percha and paper discs, the specification says:

> "It is preferable, after the disc e has thus been bonded to the disc d to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta percha and a close adhesion of every portion of the disc d to the disc e."

It is evident from this description that the gutta percha forms a coating or thin film upon the surface of the disc.

The specification and drawing describe and illustrate the gutta percha as a bonded surface upon the paper.

Moreover, the specification makes clear that the stratum of gutta percha is extremely thin, for it says:

> "The very thin gutta percha tissue will melt very rapidly, and after the removal of the punch f or plunger i, will solidify with great rapidity and form a substantially imperceptible stratum intermediate the disks e and d."

Hence it is clear that the stratum of gutta percha provided by the applicant is identical with the stratum described in the Koch patent, and which Koch has, with the approval of the Patent Office, defined as a "coating" upon his paper. Moreover, it fully responds to the dictionary definitions of the term "coating", and, obviously, these definitions indicate the usual and proper significance of the word.

The grant of the Koch patent shows that the term "coating" applies and accurately describes applicant's use of gutta percha. To hold that the applicant's structure

does not support a reasonable interpretation of the term would be inconsistent with the action of the Patent Office in approving the use of the same definition by Koch to describe a corresponding use of a gutta percha film.

The Examiner has stated that the term "coating" in the Lange claim means "coating obtained from a gutta percha solution". Now, the applicant is not concerned with the meaning of this word as used in the claim of the Lange patent. Lange may have intended to obtain a patent upon a solution coating, but the fact remains that he did, in fact, obtain a claim which covers a coating in its broadest sense. That Lange may have intended to use this word in a limited sense seems to be immaterial, at least to applicant's right to a patent containing the claim (15) which he now presents, for the reason that the applicant is not seeking a patent upon the subject matter of the Lange disclosure, but upon the invention which the applicant discloses.

The applicant claims to be the first to produce a cap liner comprising paper of the class described (high gloss) having a varnish surface on one side and a coating or layer of gutta percha on the other side in union with the paper. The application discloses (1) paper of this character, (2) the varnish coating, and (3) the gutta percha coating. Although the gutta percha coating is applied by means of tissue, the specification describes that this tissue is fused or bonded to the paper, and, therefore, it covers or coats the surface of the paper. The fact that this gutta percha constitutes a coating is not altered by the

further fact that, at the same time it is applied to the paper, the entire liner is inserted in the cap. This is merely an incident in the process adopted by the applicant for producing the liner.

It would be impossible to obtain the fusion of the gutta percha to the paper, which the specification describes, unless the gutta percha completely coats or covers the surface of the paper disc. This result is not in any way modified by the fact that simultaneously the applicant utilizes the softened gutta percha to unite the paper to the cork disc. He does this instead of permitting the gutta percha to harden and thereafter softening the same in exactly the same manner to effect the union of the discs with the cork.

"ARTICLE OF MANUFACTURE" IS A GENERIC EXPRESSION - IT MAY BE PROPERLY APPLIED TO A PART OF A MANUFACTURED DEVICE.

Since the Examiner has held that applicant does not disclose an article of manufacture, it is apparent that he is under the impression that a development to constitute an article of manufacture must not be merely a part of a complete article. Now such an interpretation of the expression is not in accord with the settled meaning of the term "manufacture" as used in the Statute, or the customary meaning of the term as employed in issued patents. The Statutory meaning of "manufacture" has been frequently defined by the Courts. It is a very broad term, and Judge Acheson in Johnson V. Johnston, (C. C.) 60 Fed. 618, 620, stated that:

> "The term 'manufacture,' as used in the patent law, has a very comprehensive sense, embracing whatever is made by the

> art or industry of man, not being a machine, a composition of matter, or a design."

Walker on Patents (4th Ed. Sec. 17) states:

> "Whatever is made by the hand of man and is neither of these (i.e., an art, a machine, a composition of matter, or a design), is a 'manufacture,' in the sense in which that word is used in the American patent laws."

In Riter-Conley Mfg. Co. v. Aiken (C. C. A. 3d Cir.), the Court held that either a building or a part of a building is a manufacture and may be patented as such if it involves novelty or invention. In that case Judge Buffington said:

> "To say that a roof falls within the domain of architecture is not to decide the question; for the question is not whether a roof construction is included in architecture, which, of course, it is, but whether the roof section here in question is, in view of its several constituent and co-operating elements, a manufacture. We must not be misled by the factors of size or immobility. The pyramids, by reason of their bulk and solidity, are none the less a manufacture, as distinguished from a natural object."

The Examiner is requested particularly to note this decision, since the Court made clear that a part of a building, e. g., roof, may be claimed as an article of manufacture just as the applicant is here claiming part of the complete cap shown in the drawing.

Furthermore, in the case of International Mausoleum Co. v. Sievert, the Circuit Court of Appeals for the 6th Circuit in referring to the above quoted decision of Judge Buffington, had this to say:

> "That case (as does also the opinion of Judge Orr in the District Court (205 Fed. 531) contains an interesting discussion of the question under consideration. It seems clear that the making of the various

parts of the mausoleum would be manufacture. The subject, in our opinion, does not lose its nature from the mere fact of the bringing of the parts together in a complete whole."

Consequently, it is clear from these decisions of the Circuit Court of Appeals of the 3d and 6th Circuits, as well as from the broad definitions of the invention appearing in the earlier cases, that the Examiner should not construe "article of manufacture" to mean only a complete manufactured article; it may be, and frequently is, a part of a complete article just as applicant's liner is a part of his complete cap.

Now, with reference to the accepted meaning of the term "article of manufacture", in this particular art of caps and cap liners, we again refer the Examiner to the Koch patent, mentioned above, and also to the patent to Weiseenthanner, No. 857,698, June 25, 1907.

The specification of the Koch patent describes clearly that the four (4) layers of liner material are, one after another, inserted in the cap, and that thereafter the cap is subjected to heat. The claims of this patent do not include the cap as an element, but define merely the liner as an article of manufacture. Each claim of this patent is identical in form or character with claim 15 of the present application. For example, claim 3 reads:

"As a new article of manufacture, a cover for bottle cap corks, comprising an outer surface layer of metal foil, an intermediate sheet of flexible material, an adhesive coating of soft rubber connecting the said sheet and metal foil, and a fusible coating or layer of guttapercha applied to the inner side of the said sheet."

This patent, therefore, constitutes a clear precedent for a claim of the form presented, and other patents could readily be called to the Examiner's attention, viz; the patent to Weissenthanner, above mentioned.

The patent to Koch and the patent to Weissenthanner do not disclose a liner or "cover", as an article which exists independently of the cap, i. e., prior to its assembly with the cap. In other words, the inventions which Koch and Weissenthanner have patented, as articles of manufacture, do not exist until assembled with a cap. (See specification of Koch, page 1, lines 65 to 96 and Weissenthanner, page 2, lines 44 to 47).

It will be clear that both of these patents claim articles of manufacture and describe liners which are not completely formed until with a cap.

APPLICANT DISCLOSES A LINER AS AN ARTICLE OF MANUFACTURE.

The above cited decisions and the patents mentioned show that this application fully supports the usual meaning of "article of manufacture" and its accepted meaning in the art to which the present invention relates. It is, therefore, believed that the Examiner will desire to reconsider his holding that the term "article of manufacture" as applied to a lining must mean a liner formed prior to the construction of the cap and existing independently of the cap. To interpret the expression in this way is not in accord with either the past actions of the Patent Office in the grant of earlier patents or with the decisions of the Court bearing on the meaning of "manufacture".

The claim (15) does not state that the liner is formed prior to or independently of its assembly with the cap.

It is clear from applicant's disclosure that he forms the liner at the same time he assembles same with the cap, but the claim makes no reference to the method of its manufacture or to the time of manufacture. The claim defines merely the finished liner and this article as defined in the claim is disclosed in both the specification and drawings.

The liner as an article of manufacture is made by the applicant and in the form defined is present in the finished product.

The Examiner should observe that there is a clear distinction between the question here presented and that considered by the Commissioner in Ex parte Howard 1924 C. D. p. 75. In that case, the applicant was attempting to claim an article which existed only at an intermediate stage of a process and which did not appear as such in the final product. Consequently, it was held that this article was not a "manufacture", as defined by the Statute. The Commissioner said:

> "The article claims are drawn to a freely-falling drop or gob of molten glass. The drop exists as such only while falling to the mold. When it reaches the latter, it assumes a different shape, solidifies immediately, and is transformed into a completed article. In view of the decisions cited, I am of the opinion that it is the finished product that the patent statutes are designed to protect as 'manufactures' and not something which is produced at a particular stage of the manufacturing process and which is evanescent and adapted for use only in so far as it may enter into and be modified by subsequent steps of a method for producing a completed article.

> "In reaching this conclusion I am not unmindful of the fact that products of intermediate steps of a process or method may be inherently useful and new, and therefore may be patented as articles. Thus a roof is a 'manufacture' within the meaning of section 4886, Revised Statutes, and in constructing a roof the builder may also fabricate the clay tiles, beams, bolts, rivets, etc., used in forming the same, each of which would be intermediate products and, if new, patentable as a 'manufacture'. These articles, however, are inherently useful and complete in themselves. Nothing remains to be done to make a finished product. On the other hand, the drop of glass claimed is in its temporary condition while being transformed into something else. The 'manufacture' is not yet made, the process of manufacturing is still incomplete."

In the present case, the liner appears in the final product, and in the precise form defined. Hence, it is a distinct element of the cap and an article of manufacture. Of course, it is associated with a cap, just as a roof may be constructed with a house, but as pointed out in the decisions above cited, this constitutes no reason why it cannot be claimed as an article of manufacture.

In other words, the claim (15) is directed to a sub-combination or sub-element of the complete device, and, so far as this claim is concerned, it is immaterial whether the liner is manufactured prior to its assembly with the cap or simultaneously with the assembly operation, as disclosed by the applicant. As the Examiner will observe, there is no suggestion in the claim that the paper is in sheet or strip form, nor is there any limitation requiring its production prior to assembly with the cap.

It has been repeatedly held that an applicant

may claim as an article of manufacture any part of an article or machine which is useful and constitutes an entity in the final product or machine.

In the case of Roberts v. H. P. Nail Co., 53 Fed. 920, the Court said:-

> "In a combination patent it is permissible for the patentee, after claiming his whole machine, to claim also the combination of fewer parts than the whole, provided the combination of the parts is new, even if, taken along, the combination will not result in any known useful product. This is fully established in the decision of Judges McKennan and Nixon in the case of Wells v. Jaques, 5 O. G. 364. In that case the patent was for a combination of elements making up a hat-body machine. The combination embodied a great many different parts, and the patentee made quite a number of claims, of which one only embodied the whole machine. It was objected that only the claim for the whole machine was valid, because the devices in combination in the other claims could not be employed alone for any useful purpose, and, only being useful when combined into a complete machine, the patent should have been for the unit, and not for the different combinations. To this objection Judge Nixon says:
>
> > 'I cannot yield assent to that proposition. The separate claims of a patent must be construed in reference to the specifications; and, if the specifications point out the arrangements to be made, or the methods to be adopted, in connection with other instrumentalities which the inventor may not claim as new, in order to render his invention practically useful, the test to be applied is not whether the claim alone will produce a useful result, but whether it will do so supplemented by and in connection with such designated devices and instrumentalities.'"

The same question was presented in the case of Chambers-Bering-Quinlan Co. v. Fairas, 75 Fed. 663, and in subsequent cases, such as Thomson-Houston Elec. Co. v. Black River Traction Co., 135 Fed.763, where the

> "Many subcombinations, although new, are not useful, except to perform their appropriate functions in the machine of which they are a part. The description in the patent of the whole machine, and of the means or mode by which the subcombination is brought into co-operative relation with the other parts, usually indicates how the subcombination may effect a useful result. When this is so, the combination need not be operative alone, because (to use the language of Mr. Walker) 'utility is justly ascribed to things which have their use in cooperating with other things to perform a useful work.'".

In the case of National Metal Casting Company v. American Steel Foundries, 182 Fed. 639, a similar ruling was adhered to. In Wright Co. v. Herring-Curtiss Co., 204 Fed. 607, the Court said:

> "In such circumstances, as I read the authorities, the claim is valid as a subcombination. Thomson-Houston Electric Co. v. Black River Traction Co., 135 Fed. 759, 68 C. C. A. 461; Deering v. Winona Harvester Works, 155 U. S. 286, 15 Sup. Ct. 1187, 39 L. Ed. 153; Taylor et al v. Sawyer Spindle Co., 75 Fed. 301, 22 C. C. A. 203. In Railroad Co. v. Dubois, 12 Wall, 47, 20 L. Ed. 265, the Supreme Court of the United States says:
>
> > "Undoubtedly a patentee may claim and obtain a patent for an entire combination, or process, and also for such parts of the combination or process as are new and useful, and he may claim and obtain a patent for both."

CONCLUSION.

It is submitted that this application presents a disclosure which justifies the applicant (1) in defining the invention as an "article of manufacture" and (2) in defining the gutta percha as a "coating" for the paper. And it is submitted that if these

terms are given their proper meaning and the broadest meaning to which they are reasonably susceptible, the Examiner cannot logically reach a contrary conclusion.

Respectfully,

Attorneys for Applicant.

JJD:W

1342 1586

11/C

U.S. APPLICATION DIV. OCT 31 30 U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

U. S. PATENT OFFICE
FILED
OCT 31 1930
DIVISION 50

Albin H. Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895

Div. 50.

October 31, 1930

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

Supplementing the amendment of Oct. 27, 1930, we hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

No Amendment
See Amendment D

Page 10

Line 6 after the matter inserted by amendment of Aug. 29, 1930, insert the following: --The varnish described provides a film which is insoluble. That is to say, the film is insoluble in acetic acid, citric acid, tartaric acid, and carbonic acid, and it is also insoluble in alcoholic beverages of such alcoholic percentage as may be ordinarily obtained for human consumption. The Chinawood oil is typical of oils which are resistant to alcohol and, therefore, makes the varnish alcohol resisting or insoluble.--

C'

Per E

IN THE CLAIMS

Add the following:

1343
1587

Re E

--16. A composite material of the character described ~~for use in container~~ caps comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

C

17. A composite material of the character described ~~for use in container caps~~ comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

18. (Claim 1.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

19. (Claim 2.) A composite material of the character described comprising a layer of sheet material, an alcohol resistant film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material.

20. (Claim 3.) A composite material of the character described comprising a layer of sized paper, an insoluble film of varnish adhering to one surface of the paper, a layer of resilient material, and a film of waterproof adhesive bonding said resilient material to the other surface of the paper, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

21. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising a resin and an oil the dried film of which is resistant to alcohol.

111/50

22. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising resin and an oil the dried film of which is resistant to alcohol.

23. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising resin and Chinawood oil.

24. (Claim 8.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive comprising gutta percha bonding said layer of resilient material to the other surface of said sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

3TT/51

25. (Claim 9.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

C'

26. In a container cap and as a liner therefor, a composite material comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material and a waterproof adhesive bonded to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

27. In a container cap and as a liner therefor, a composite material comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material and a waterproof adhesive in the form of gutta percha bonded to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.--

REMARKS

The Examiner's attention is called to the fact that a number of the foregoing claims have been copied from the patent to Lange, No. 1,779,884, granted October 28, 1930. A number of the other claims are slightly broader

than the patent claims, and are submitted at this time so that the record may be clear that applicant is claiming the broad subject matter.

With respect to the broader claims, it will be noted that claims 16 and 17 are based upon claims 1 and 9 of the Lange patent.

Claims 26 and 27 are somewhat similar to claims which were cancelled by the patentee directed to a three layer material, to wit: varnish, paper and gutta percha, and do not refer to the cushioning material. This two layer material is clearly disclosed by the applicant and is formed when assembled with the cushion material. So that the Examiner may readily observe the identity of applicant's claims with those of the patent, we have noted the patent claims in connection with those which have been copied exactly. On other words, it will be observed that applicant has copied in exactly the form appearing in the patent claims 1, 2, 3, 8 and 9.

Claims 4, 5 and 6 of the patent appear in substance in this amendment as claims 21, 22 and 23.

The specification has been amended to set forth the inherent characteristics of the varnish described, and a supplemental oath covering this amendment will be filed.

It is requested that an interference be promptly declared.

Respectfully,

Cushman, Darby & Cushman
Attorneys.

JJD:U

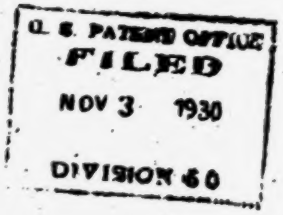
1348

1592

12



IN THE UNITED STATES PATENT OFFICE



Albin H. Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1928,

Serial No. 360,895. Div. 50.

SUPPLEMENTAL OATH

CITY OF BALTIMORE)
:SS.
STATE OF MARYLAND)

ALBIN H. WARTH, being duly sworn, deposes and says that he is the applicant in the above entitled application, that he has read the recently filed amendment therein, copy of which is attached hereto, that the subject matter of the said amendment was part of his invention, was invented before he filed his original application, above identified, for such invention, was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented in a foreign country on an application filed by himself or his legal representatives or assigns more than twelve months before his application, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

Albin H. Warth

Sworn and subscribed to, before me, a Notary Public, this 1st day of November, 1930.

Howard M. Peckrath
Notary Public.

MY COMMISSION EXPIRES MAY 4, 1931.

1349

1593

PUBLICATION DIV. NOV - 3 30 U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895 Div. 50.

October 31, 1930

Hon. Commissioner of Patents,

Washington, D. C.

Dup

Sir:

Supplementing the amendment of Oct. 27, 1930, we hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 10

Line 8 after the matter inserted by amendment of Aug. 29, 1930, insert the following: ---The varnish described provides a film which is insoluble. That is to say, the film is insoluble in acetic acid, citric acid, tartaric acid, and carbonic acid, and it is also insoluble in alcoholic beverages of such alcoholic percentage as may be ordinarily obtained for human consumption. The Chinawood oil is typical of oils which are resistant to alcohol and, therefore, makes the varnish alcohol resisting or insoluble.--

IN THE CLAIMS

Add the following:

--16. A composite material for use in container caps comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

17. A composite material for use in container caps comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

18. (Claim 1.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

19. (Claim 2.) A composite material of the character described comprising a layer of sheet material, an alcohol resistant film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material.

20. (Claim 3.) A composite material of the character described comprising a layer of sized paper, an insoluble film of varnish adhering to one surface of the paper, a layer of resilient material, and a film of waterproof adhesive bonding said resilient material to the other surface of the paper, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

21. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising a resin and an oil the dried film of which is resistant to alcohol.

22. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising resin and an oil the dried film of which is resistant to alcohol.

23. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising resin and Chinawood oil.

24. (Claim 8.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive comprising gutta percha bonding said layer of resilient material to the other surface of said sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

25. (Claim 9.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

26. In a container cap and as a liner therefor, a composite material comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material and a waterproof adhesive bonded to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

27. In a container cap and as a liner therefor, a composite material comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material and a waterproof adhesive in the form of gutta percha bonded to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.--

_R_E_M_A_R_K_S_

The Examiner's attention is called to the fact that a number of the foregoing claims have been copied from the patent to Lange, No. 1,779,884, granted October 28, 1930. A number of the other claims is slightly broader

than the patent claims, and are submitted at this time so that the record may be clear that applicant is claiming the broad subject matter.

With respect to the broader claims, it will be noted that claims 16 and 17 are based upon claims 1 and 9 of the Lange patent.

Claims 26 and 27 are somewhat similar to claims which were cancelled by the patentee directed to a three layer material, to wit: varnish, paper and gutta percha, and do not refer to the cushioning material. This two layer material is clearly disclosed by the applicant and is formed when assembled with the cushion material. So that the Examiner may readily observe the identity of applicant's claims with those of the patent, we have noted the patent claims in connection with those which have been copied exactly. In other words, it will be observed that applicant has copied in exactly the form appearing in the patent claims 1, 2, 3, 8 and 9.

Claims 4, 5 and 6 of the patent appear in substance in this amendment as claims 21, 22 and 23.

The specification has been amended to set forth the inherent characteristics of the varnish described, and a supplemental oath covering this amendment will be filed.

It is requested that an interference be promptly declared.

Respectfully,

_____

Attorneys.

JJD:U

1355

1599

Div. 56 Room 311

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 13

FJP/jnk

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

November 24, 1930

Cushman, Bryant & Darby,
Washington Loan and
Trust Bldg., Washington,
D.C.

Applicant: Albin H. Warth

Ser. No. 360,895
Filed May 6, 1929
For Bottle Caps and The Method of Making Same

NOV 24 1930

Responsive to amendment filed Oct. 31, 1930.

The following additional reference is made of record:

Lange 1,779,884 Oct. 28, 1930 154-45.5

Applicant's argument of Oct. 27, 1930, relative to claim 15 has been considered but the examiner sees no reason for changing his attitude as expressed in the office letter of Oct. 7, 1930.

In this connection, applicant's attention is invited to in re Bijur 398, O.G. 355, from which it will be clear that the terms used by Lange in defining his composite stock material cannot be disregarded.

On reconsideration, claim 13 also is rejected as applicant cannot make this claim. Applicant does not at any time make such a paper as is defined by this claim as a separate identity.

Claim 14 is for a bottle cap examinable in Division 40.

Applicant does not give in his description such a full statement of his glazed surface on page 10 in lines 4-6, as will now support the function attributed to this varnish by the insertion after line 8, page 10, by the amendment of Oct. 31, 1930.

Applicant is, therefore, required to cancel the insertion after line 8, page 10, by the amendment of Oct. 31, 1930.

Applicant is further notified that the directions for this insertion are confusing because they refer to an amendment of Aug. 29, 1930, whereas there is no such amendment, the amendment of the earlier date having been made in line 6, page 10.

Claims 16-27, inclusive, are rejected as applicant has never

5131

disclosed such a composite material as is referred to in these claims whereas the material of Lange is a separate identity or material and so described and claimed by Lange in patent 1,779,884.

Claims 16 and 17 are further rejected as broader than the disclosure as any varnish will not do nor has applicant gone into any detail in his description asto the character of varnish necessary for the purpose whereas the Lange patent 1,779,884 is clear on this point.

Claims 18 and 20 are further rejected as applicant has no basis herein for his reference as to an "insoluble film of varnish".

Claim 19 is further rejected as applicant does not give all the characteristics of his varnish wherefrom it may be stated that the film is alcohol resistant.

Claim 20 is further rejected because applicant does not disclose the use of sized paper.

Claims 21 and 22 are further rejected as there is no basis herein for applicant's reference in this claim to the dried residue of a varnish nor is there any basis in the disclosure for the use of any resin and any oil which is resistant to alcohol.

Claim 23 is rejected also for a reason similar to that last mentioned, i.e., applicant does not disclose how his waterproof glazed surface is made.

Applicant is furthermore required to cancel claims 21-27 as being divisible from the bottle cap claims to which applicant has already elected to restrict this case.

Stock material such as is disclosed and claimed by Lange 1,779,884 is classified and examined in Division 56, class 154-45.5 whereas the bottle cap itself is examinable in Division 40.

Inasmuch as a patent could not possibly issue to applicant

1357

1601

Ser. No. 360,895. Sheet #3.

on this application as to claims 21-27, inclusive, no interference will be declared.

In accordance with the practice set down in ex parte Weber and Woodford, C.D. 1919, page 65, applicant is required to respond to this rejection prior to Dec. 13, 1930, and prepare this case for appeal as indicated in the decision referred to.

This action is taken by the examiner in Division 56 upon transfer of this case from Division 50 because applicant has copied claims from a patent granted in Division 56, i.e., the Lange patent cited above.

The rejection of claim 15 originally made in Div. 50 is here repeated after consideration of applicant's argument and conference with the examiner in charge of Division 50 and in view of the examiner's action herein regarding claims 16-27, inclusive, it was apparent that claim 13 should be rejected for the same reason, this action being taken to expedite the prosecution of the case.

Porter
Examiner.

1358

1602

14

U.S. APPLICATION DIV. NOV 28 30 U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth

BOTTLE CAPS AND THE METHOD OF MAKING SAME,

Filed May 6, 1929

Serial No. 360,895. Div. 56.

U. S. PATENT OFFICE NOV 29 1930 DIVISION 56

November 28, 1930

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

It is requested that the amendatory matter submitted in the last amendment be inserted at page 10, line 6, after the amendatory matter previously inserted at that line.

REMARKS

In the light of a recent interview kindly granted applicant's attorneys by the Primary Examiner, reconsideration of the refusal to declare an interference between this application and the Lange patent #1,779,884, is respectfully requested.

Applicant has copied for interference purposes claims 1, 2, 3, 8 and 9 of this patent; these claims of the patent are respectively, 18, 19, 20, 24 and 25 of this application.

The rejection of this group of claims seems to be based upon the following principal grounds, namely:

(A). Applicant does not disclose the composite material as a separate identity or article from a cap.

(B). Applicant does not disclose an insoluble film of varnish.

(C) Applicant does not disclose an alcohol resistant film of varnish(claim 19).

(D) Applicant does not disclose sized paper (Claim 20).

Each of the above grounds of rejection will be separately discussed, and it is believed that the Examiner upon considering the following remarks, which cover the same arguments advanced at the interview, will order that the interference be promptly declared.

(A). APPLICANT DOES NOT DISCLOSE THE COMPOSITE MATERIAL AS A SEPARATE IDENTITY OR ARTICLE FROM A CAP.

This ground of rejection is obviously based upon the premise that the claims of the Lange patent are limited to a material which is formed prior to its assembly with the cap. Plainly, both the patentee and the applicant are concerned with the manufacture of a liner for a cap. The first paragraph of the patent specification states that the invention relates "to a composite material especially adapted for the purpose of providing a liner for bottle caps". Applicant discloses a process for forming a similar liner, but instead of assembling the various layers of the liner outside the cap, he positions the cap,with the cushion layer already inserted,beneath cutting dies (Fig. 3), so that the final steps of the assembly are completed within the cap. Nevertheless, the complete article, as formed by the applicant, corresponds exactly to the complete article produced by the patentee.

Although the patentee shows the material in the drawings removed from a cap, he states distinctly in his specification that this material may be formed in exactly the same manner described by the applicant. Note particularly the first paragraph of the specification, p. 2, l. 6-14, which reads:

> "the material may in a sense be absembled within the container cover. For example, the paper may be coated, or otherwise provided with films of varnish and adhesive. The resilient material may be inserted in the container cover and thereafter the varnished and adhesive coated paper may be applied to the fibrous material within the container cover or cap."

From this statement in the specification, it is apparent that the patentee sought claims which would cover his laminated cap-liner material whether (1) completely assembled outside the cap and then inserted, or (2) partially assembled or formed in the cap.

Furthermore, a reading of the claims shows that they are not limited to a material in sheet or strip form, but cover clearly a material produced in accordance with the above quoted statement in the patent specification. Not a single claim of the patent mentions that the material is in sheet or strip form. Moreover, many of the claims state that the material is "impervious to moisture". Note particularly the last lines of claims 1, 3, 8 and 9, each of which has been copied by the applicant. Obviously, the material would not be impervious to the moisture unless it is inserted in a cap. since one surface of the cushion layer is not protected by a moisture impervious facing or spot. It is true that applicant's spot does not extend over the entire surface of the cushion material, but it does extend over as much of the

333/66

cushion material as is exposed to the bottle contents; hence applicant's composite material is impervious to moisture throughout the entire area exposed to the container contents.

Therefore, in view of the plain language of the specification which distinctly describes a mode of manufacture almost identical with that described in the present application and in view of the broad language of the claims, we submit that it is evident the patentee intended to cover a laminated material of the character specification, regardless of whether this material is produced outside a cap or inside a cap, as described by the applicant.

Aside from this statement in the specification of the patent, the fact that the applicant positions his cushion layer within a cap before he applies the other two layers (adhesive and spot material) thereto, constitutes an additional feature of the applicant's invention. In other words, applicant goes a step further than the patentee specifies in his claim and effects a complete assembly of the several layers with the cap at the same time that he assembles the layers. Manifestly, it does not constitute a patentable variation of the applicant's invention to apply the adhesive and spot layers to the cushion material before the latter is inserted in a cap.

(B). APPLICANT DOES NOT DISCLOSE AN INSOLUBLE FILM OF VARNISH.

Admittedly, the applicant did not state that the surfacing which he applies to the paper is varnish or an insoluble varnish, but the specification (p. 10, l. 5) does contain the following statement:

JJJ 47

"The glazed surface upon the strip d' consists of a waterproof compound consisting of resin, Chinawood oil and a drier, and containing a plasticizer."

The above quoted sentence describes not only a varnish, but an insoluble varnish in the sense of the term insoluble is used in the specification of the Lange patent.

Webster's New International Dictionary (1925 Edition) defines "varnish":

"A more or less viscid liquid (usually a solution of resinous matter in an oil or volatile liquid) which, when spread upon a surface, dries either by evaporation or chemical action, forming a hard lustrous coating capable of resisting more or less the action of air and moisture."

Definitions similar to the above will be found in other dictionaries, and we submit that it is impossible to find a definition of varnish which is not fully answered by the above quoted portion of the specification. The definition quoted specifies as the only essential characteristics of varnish (1) the resinous matter and (2) the oil or drier. Applicant states that his surface consists of (1) resin (2) Chinawood oil, and (3) a drier.

As to whether this composition described by the applicant constitutes an <u>insoluble</u> varnish, we must first understand what the patentee means by the word "insoluble". The patent specification states p. 1. l. 80-84:

"In general it may be stated that by insoluble varnish is meant a varnish which is insoluble or inert to such solvents as alcohol, acetic acid, citric acid, and carbonic acid."

Admittedly, applicant does not explain <u>why he uses a varnish of the character described</u> in the specification, but by the last amendment he did explain this when he said:

"The varnish described provides a film which is insoluble. That is to say, the film is insoluble in acetic acid, citric acid, tartaric acid and carbonic acid etc."

This additional matter inserted in the specification is definitely covered by a supplemental oath which accompanied the amendment and which the Examiner will find in the Official file. The insertion does not constitute new matter, as suggested by the Examiner, for the reason that it merely discloses essential and inherent characteristics of the composition set forth in the original specification. To any one familiar with the resistant action of varnishes and compositions of the nature described, it would be apparent that any composition produced in the manner explained, would be resistent to the various acids mentioned. Whether the applicant's composition is insoluble is, of course, a question of fact; but the applicant states, under oath, that it is insoluble in these acids, and we believe the Examiner will be unable to find anything which would support him in controverting this statement. If the Examiner desires affidavits additional to those of the applicant covering the statement that the composition employed by the applicant is insoluble, we will be pleased to furnish the same. But we submit that such affidavits are unnecessary in view of the applicant's own supplemental oath and the further fact that this question will be fully considered in the interference.

If the Examiner will consider for a moment the reason why applicant provides this surface, he will appreciate that there is every reason to conclude that applicant's composition is insoluble, rather than to conclude to the contrary. Why did the applicant provide this composition surface? Is it not provided for the purpose of protecting the paper from the beverage contents? As the Examiner knows, the

applicant is a highly skilled inventor in this art and for years he has been working upon the problem of protecting the composition layers of caps from the contents of bottles with which these caps are used. The applicant is the Chief Chemist of the Crown Cork & Seal Company, assignee of this application, and for many years has been devoting himself to the problem of protecting the composition cork liners by means of suitable moisture and acid proof facings. Is it natural, therefore, that in producing an improvement having as its primary object to afford this protection, the applicant would provide an exposed varnish surface not adapted to protect the underlayers from the acids which are usually present in the beverages with which these caps are employed? Merely to state the question is to answer it in view of the extended experience of the applicant and his avowed purpose in providing the glazed surface.

(C). APPLICANT DOES NOT DISCLOSE AN ALCOHOL RESISTANT FILM OF VARNISH (CLAIM 19).

This objection relates primarily to claim 19 (claim 2 of the patent) which specifies "an alcohol resistant film of varnish". By reference to the above quoted portion of the specification (p. 10, l. 5-6) it will be observed that applicant states his surface composition includes Chinawood oil. The patentee also uses Chinawood oil, and with reference to this ingredient states (p. 3, l. 75 et seq.):

> "Cumar gum may be compounded largely with certain of the oils which are resistant to alcohol, such as for example Chinawood oil .. -".

Hence it is apparent that the patentee's varnish is resistant to alcohol because of the inclusion of Chinawood oil. Manifestly, the applicant's composition is also resistant to alcohol, since it includes the same alcohol re-

sistant ingredient.

(D). APPLICANT DOES NOT DISCLOSE SIZED PAPER (CLAIM 20).

This objection relates primarily to claim 20, which is claim 3 of the patent. This claim specifies "a layer of sized paper".

The applicant has described that he employs express paper, for he says:

> "In the cap of my invention the center disc d is composed of glazed hard paper, such as is generally known as express paper etc."

Express paper is officially defined as a highly polished calendared or sized paper, and in this connection the Examiner's attention is called to the hand-book of official definitions of paper available in his division. This book is believed to be on the desk of the Assistant Examiner, Mr. Chandler.

CONCLUSION

It is believed that the foregoing remarks will completely satisfy the Examiner as to the applicant's right to make claims 1, 2, 3, 8 and 9 of the patent, which claims are numbered, respectively, 18, 19, 20, 24 and 25 in this application.

Claims 13, 14 and 15 will not be discussed, since it is thought unnecessary to do so in this amendment, for the reason that an interference is being declared involving claim 15 and the earlier issued Lange patent (1,756,610) from which the claim was copied. In regular course, applicant will present a motion to shift the burden of proof in that interference and, consequently, there seems to be no occasion to discuss at this time the applicant's right to

make the claim in this case. For the same reason claim 13 will not be discussed. The requirement of division with respect to claim 14 is noted.

Claims 16 and 17. These claims are not taken from the patent, but are similar to claims of the Lange patent. The rejection upon the ground that the claims are broader than the disclosure is believed improper for the reason that, as pointed out in the above quoted definition of varnish, any varnish is resistant to water. Consequently, if the cap is to be used only for closing water containers, any varnish would be suitable. This holding that the use of the broad term "varnish" is not proper is inconsistent with the allowance of the earlier Lange patent 1,758,610, which covers a paper having one surface coated with varnish; no reference is made in the claim of this patent to any particular characteristics of the varnish. It is submitted that since any varnish would be suitable for some purposes, it is not necessary that the broad claims be restricted to an insoluble varnish.

Claims 21 and 22. The objection to these claims on the ground that applicant does not disclose a "dried residue" of the varnish is improper for the reason that applicant specifically discloses that his varnish contains "a drier". Obviously, therefore, when this drier functions, what remains after the drying period is a varnish residue.

It is submitted that an interference should be declared between this application and claims 1, 2, 3, 8 and 9 of the Lange patent 1,779,884, granted Oct. 28, 1930.

Respectfully,

JJD:U

Attorneys.

1367

1611

Div. 56 Room 311 EJP/C Paper No. 15

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications regarding this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application.

Dec. 2, 1930.

Thomas E. Robertson
Commissioner of Patents.

Cushman, Bryant & Darby
Wash. Loan & Trust Bldg.,
Washington, D.C.

Applicant: A.H.Wartn

Ser. No. 360,895
Filed May 6, 1929
For Bottle Caps & the Method of Making Same.

MAILED
DEC 2 1930

Responsive to amendment filed Nov. 28, 1930.

Claims 13 and 15 are properly rejected for reasons of record.

Applicant is again required to cancel the insertion after line 8, page 10, for reasons of record.

Claims 16 and 17 are rejected for reasons of record, since applicant does not disclose a composite material for use in bottle caps.

Claims 18 and 20 are properly rejected as applicant's disclosure is not sufficient to support the "insoluble film of varnish"referred to in these claims.

Claim 19 likewise is rejected as there is no basis herein for applicant's claim for an alcohol resistant film of varnish.

Some resins are entirely soluble in alcohol and some partly, and a few nearly insoluble. It is necessary that the proper resin be selected that will mix with China Wood oil. Lange has disclosed this composition and applicant has not. For this reason applicant will not be allowed claims which refer to the character of the varnish.

Claims 21 and 22 are again rejected because of their reference to a varnish film resistant to alcohol.

As indicated above, applicant will not be allowed claims herein for the function of a varnish where no specific varnish was disclosed.

Claim 23 is rejected for reasons of record, i.e., applicant made no disclosure originally or even now of a specific

varnish which will be insoluble under stated conditions.

The mere fact that the varnish actually used by applicant is actually insoluble in the liquids and solutions mentioned in the insertion in line 8, page 10, has no bearing on the question as to whether applicant has a right to make the claims. The right to make the claims rests with the disclosure.

Claims 24 and 25 are rejected because of the inclusion of an insoluble film of varnish.

The rejection of claims 26 and 27 on the grounds stated in the last office letter, i.e., that they are drawn to a liner material as a separate identity is withdrawn.

Claims 26 and 27 are properly examinable in Division 40.

Claims 15, 18, 19, 20, 24 and 25 are FINALLY REJECTED.

Limit of appeal under ex parte Weber & Woodford C.D. 1919 p. 65 - December 23, 1930.

Examiner.

1369

1613

IN THE UNITED STATES PATENT OFFICE

U.S. APPLICATION DIV. U.S. PATENT OFFICE

DEC - 3 30

[illegible] Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895. Div. 56.

16/E + aff't not book

December 3, 1930

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In response to the Official action of Dec. 2, 1930, kindly amend the above entitled application as follows:

IN THE SPECIFICATION

Page 10, line 6 cancel the amendatory matter inserted by the amendment of October 31, 1930, and substitute: --A varnish compound of this character provides a film which is insoluble. By insoluble, I means a film which will resist the action of acetic acid, citric acid, tartaric acid, and carbonic acid, in such proportions as these acids are usually found in beverages ordinarily obtainable for human consumption. It also is resistant to alcohol in such percentages as alcohol is ordinarily found in beverages. As a matter of fact, any such varnish is insoluble in liquids containing an extremely high percentage of citric acid, tartaric acid and carbonic acid. The Chinawood oil is typical of oils which are resistant to alcohol and, therefore, causes the varnish to be alcohol resistant or insoluble.--

E'

IN THE CLAIMS

Claim 16, lines 1 and 2 and claim 17, line 1 cancel "for use in container caps" and substitute --of the character described.--

REMARKS

The Examiner is respectfully requested to reconsider the final rejection of claims 18, 19, 20, 24 and 25. He is also requested to withdraw the action upon claim 15, as well as the limit of appeal, since the question of applicant's right to make this claim in the present case will be

settled by motion in an interference now being declared between another application and the Lange patent 1,758,610.

With respect to claims 18, 19, 20, 24 and 25, the rejection of these claims may be divided into two distinct grounds:

1. Claims 18, 20, 24 and 25 on the ground that applicant does not disclose an insoluble film of varnish, and

2. Claim 19 on the ground that applicant does not disclose an alcohol resistant film of varnish.

These grounds of rejection raise what is primarily a question of fact, namely whether any varnish compounded in the manner described in the specification would be (a) insoluble, or (b) resistant to the action of alcohol. In order that the Examiner may be entirely satisfied as to the propriety of the amendment in the specification (p. 10, l. 6), we present herewith the applicant's affidavit. This affidavit states that any conventional or standard varnish compound of Chinawood oil and a resin, regardless of the character of the resin and the relative proportions of the oil and resin, will be (a) insoluble in acids (acetic acid, tartaric acid and carbonic acid) at least in the percentages these acids are present in the usual beverages, and (b) resistant to alcohol in the percentages alcohol is present in beverages. As a matter of fact, the affidavit shows that any such varnish composition will resist tartaric acid and carbonic acid, regardless of the percentage of acid present.

We believe that in view of the decision of the Court of Appeals in re Colay 401 O. G. p. 4 (Dec. 2, 1930), the Examiner will now concede that applicant may properly describe the composition disclosed in the specification as an insoluble or alcohol resistant varnish. It is re-

1371
1615

quested, therefore, that an interference be promptly declared between this application and the Lange patent 1,779,884, and it is believed that this interference should involve as counts claims 1, 2, 3, 8 and 9 of said patent.

Respectfully,

Attorneys.

JJD:U

1372
1616

APPLICATION DIV. PATENT OFFICE DEC -3 30

U. S. PATENT OFFICE DEC 4 1930 DIVISION 56

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & THE METHOD OF MAKING SAME,

Filed May 6, 1929,

Serial No. 360,895, Div. 56.

- - -

DISTRICT OF COLUMBIA:SS.

ALBIN H. WARTH, being first duly sworn, deposes and says:

I am the applicant identified in the above entitled application, and am Chemical Director of the Crown Cork & Seal Company, Inc., assignee of said application. For approximately fifteen (15) years I have been associated with this Company in connection with chemical work, and for approximately thirteen (13) years have been directing the chemical activities of this Company. My work, as a chemist during this period, has had to do, among other things, with the development of materials and compounds used in the coating of caps and of interior facings or liners for caps. One of the principal and most generally used compounds in this work is varnish.

I have read the Official Action of December 2, 1930, which questions whether the disclosure originally filed supports a claim directed to (a) an insoluble film of varnish, or (b) an alcohol resistant film of varnish.

The specification, as originally signed by me and filed in the United States Patent Office, in referring to the

finish or glaze upon the paper strip states:

> "The glazed surface upon the strip d' consists of a waterproof compound consisting of resin, Chinawood oil and a drier, and containing a plasticizer."

My object in providing this glazed surface was to provide an impervious surface for the paper, and as made clear in the specification I was dealing with caps of the type used generally with beverages, such as ginger ale, grape, cider, near bear, citrate of magnesia, etc. Consequently, I provided and sought to disclose in this application a surface coating or varnish which would withstand the action of the acids (acetic, tartaric, citric and carbonic) and also the relatively small amount of alcohol present in such liquids.

I was not concerned with, and make no claim that I disclosed, a varnish composition which would withstand the action of pure alcohol or pure acetic acid. Since I was providing a surface for use in a definite art, namely the capping of liqids, and particularly beverages, I was concerned with, and therefore intended to provide and disclose a varnish composition which would resist the action of acetic acid and alcohol when present in the percentages usually found in such liquids.

Furthermore, I intended to disclose and for the reasons set forth below, did in fact disclose, a composition which would withstand the action of carbonic acid, citric acid, or tartaric acid, regardless of the percentage of these acids present in the capped liquids.

The use of varnish in the cap manufacturing industry, and particularly in the manufacture of crown caps, extends back over a period of not less than fifteen (15) years. Furthermore, varnish has been used to protect the interior

facing of caps for over twelve (12) years. As a result, the relative proportions of resin and oil in varnish compounds employed in this art have become standardized. They vary from a proportion of one hundred pounds of resin to fifteen gallons of oil, constituting "a short-oil varnish," to a proportion of one hundred pounds of resin to thirty-five gallons of oil, which constitutes a "long-oil varnish". In view of these standardized proportions, anyone skilled in this art, if instructed to prepare a varnish from resin and Chinawood oil, would naturally employ proportions within this range.

I aver, as a fact based upon my own experiments and observations, that a varnish consisting of any resin whatsoever, Chinawood oil and a drier, regardless of the proportions used within the standard range customarily employed in this art, would be insoluble when used with beverages containing citric acid and carbonic acid. Furthermore, any such varnish would be insoluble in beverages of the character above identified containing the usual proportions of tartaric and acetic acid.

With respect to the alcohol insolubility of any such varnish, I aver that it would be insoluble in beverages containing alcohol in the percentages ordinarily found. In this connection, I aver such varnishes will resist alcohol in percentages far exceeding the percentage of alcohol ordinarily present in beverages of the character identified, since these beverages are by law limited to and have an alcohol content not in excess of one-half of one per-cent by volume. While it is true that some resins are soluble in alcohol, it is to be observed that the composition specified in my application includes Chinawood

oil which is insoluble in alcohol and, therefore, this oil when combined with an alcohol soluble resin makes the varnish coating resistant to alcohol and insoluble in such percentages of alcohol as are present in the usual beverages.

Therefore, it is my opinion, based upon work in this art extending over the period above mentioned, that any one skilled in the art, upon reading the sentence in my specification which I have above quoted, would prepare a varnish composition which is for all practical purposes insoluble in the various acids mentioned, insofar as use of the varnish in the capping of beverages or similar liquids is concerned. And I aver that anyone skilled in the art and with the use of varnishes for the purpose explained, would recognize that a varnish compound of the character described, is provided for this acid and alcohol resisting purpose.

Further Deponent sayeth not.

Albert H. Wentz

Subscribed and sworn to before me, a Notary Public, this third day of December, 1930.

Benjamin B. Bowell
Notary Public.

Seal.

1376. 1620

Div. 56 Room 311 GVC/C Paper No. 17

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications concerning this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application.

Dec. 8, 1930.

Thomas E. Robertson
Commissioner of Patents.

Applicant: A.H. Barth

Cushman, Bryant & Darby
Washington Loand & Trust Bldg.,
Washington D. C.

Ser. No. 360,895
Filed May 6, 1929
For Bottle caps and the Method of Making Same.

MAILED
DEC 8 1930

Responsive to amendment filed Dec. 3, 1930.

In view of the argument and affidavit filed with the amendment, the limit for appeal, set under Weber and Woodford, is withdrawn.

An interference involving this application will be prepared.

J. V. Chandler
Asst Examiner. Div. 56

TITLE REPORT

S

No. 360895

Name A. H. Barth

The title appears from the assignment records to be vested in:

Crown Cork & Seal Company Inc

Examined up to and including Dec 1, 1930

This certificate dated Dec 10, 1930

Willis B. Morgan
Chief of Assignment Division.

No further assignments appear to have been received for record including

Dec 4, 1930

1377

1621

INTERFERENCE.

Interference No. 60981 *Paper No.* 18

Name, Albin H. Warth

Serial No. 380,895

Title, Bottle Caps and the Method of Making Same.

Filed, May 6, 1929

Interference with Louvern G. Lange

DECISIONS OF

~~EXAMINER OF INTERFERENCES~~ ~~Primary Examiner~~, Interference dissolved *Dated,* May 9/31

Ex'r of Interferences, Favorable *Dated,* Aug. 22/33

Board, Affirmed in part *Dated,* Dec. 29/31

Commissioner, Dismissed (On return mandate of C.C.P.A.) *Dated,* April 9, 1932

REMARKS:

Aug 24/32 Int reopened

Aug 26/32 Testy reset

01

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

333/84

56 311 FJP/C 1622

Room 313

Address only The Commissioner of Patents Washington, D. C. and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 19

All communications respecting this application should give the serial number, date of filing, and name of the applicant

Copy to Assignee

U. S. PATENT OFFICE
DEC 12 1930
MAILED

Please find below a communication from the EXAMINER in charge of this application

Thomas E. Robertson
Commissioner of Patents

Applicant: Albin H. Warth

Cushman, Bryant & Darby
Washington Loan & Trust Bldg.,
Washington, D.C.

Ser. No. 366,895
Filed May 6, 1929
For Bottle Caps & Method of Making Same.

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 60931 On or before JAN 19 1931 the statement demanded by rule 110 must be sealed up and filed with the subject of invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count 1. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

Count 2. A composite material of the character described comprising a layer of sheet material, an alcohol resistant film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material.

Count 3. A composite material of the character described comprising a layer of sized paper, an insoluble film of varnish adhering to one surface of the paper, a layer of resilient material, and a film of waterproof adhesive bonding said resilient material to the other surface of the paper, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

Count 4. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive comprising gutta percha bonding said layer of resilient material to the other surface of said sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

Count 5. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer

1379

1623

Ser. No. 360,895 - 2.

of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

The interference involves your application above identified and a patent for Composite Material for Containers, No. 1,779,884, granted Oct. 28, 1930 to Louvern C. Lange, whose post-office address is c/o Standard Insulation Company, East Rutherford, New Jersey, whose attorneys are Pennie, Davis, Marvin and Edmonds, 165 Broadway, New York, N.Y.

The relation of the counts of the interference to the claims of the respective parties is as follows:

COUNT	LANGE	WARTH
1	1	18
2	2	19
3	3	20
4	8	24
5	9	25

F. H. Porter
Examiner.

1380

1624

DOCKET DIVISION
OCT 1 1931
U. S. PATENT OFFICE

ap Bd

#20

APPLICATION DIV
SEP 30 31
U.S. PATENT OFFICE

Applicant: Albin H. Warth,

Invention: BOTTLE CAPS & METHOD OF MAKING SAME,

Filed: May 5, 1929,

Ser. No. 360,895,

Interference No. 60,931

HON. COMMISSIONER OF PATENTS,

SIR:

We hereby substitute as attorneys in the above named case, Messrs. Cushman, Bryant, Darby & Cushman, a firm composed of Arlon V. Cushman, Arthur L. Bryant, John J. Darby and William M. Cushman (Reg. No. 7196), American Security Building, Washington, D. C.

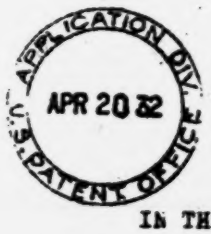
Respectfully,

Cushman Bryant & Darby

Sept. 30, 1931

1381

1625



L69

PAPER No. 21
AMENDMENT
21
(matter)

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,695 Div. 56

* * *

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 1.

Line 12, after "disk" cancel the remainder of the sentence, including the "comma" and substitute --of smaller diameter than the cushion disk.--

Line 18, after "facing" insert --center--.

Page 2.

Line 18, before "insoluble" insert --water--.

Line 22, after the period insert the following: --A medium which is itself elastic or resilient, such as gutta percha, is preferred, since the same will provide an elastic cushion for the fibrous disk and thereby minimize the danger of rupturing the latter.--

Page 4.

Line 2, cancel "of" and substitute --, such as a relatively hard, high-gloss or water-finish paper provide with a coating of resistant varnish, said disk being--.

Line 3, before "insoluble" insert --water--.

Line 4, after "material" insert --,such as gutta percha,--

Page 5.

Line 26, after "tin" and before the comma insert --or aluminum--.

Page 6.

Line 5, after the period, insert --Aside from the expense of caps provided with foil spots, their use has been extremely limited, due to the fact that foil is not sufficiently resistant to acids and alkalies.

I am aware that it has heretofore been proposed to provide a cap with a center spot of paper, and that this is broadly covered in the patent to McManus, No. 1339,066, granted May 4, 1920. The present invention constitutes an improvement upon the subject matter of said patent.

The use of center spots of paper on a commercial scale has not heretofore been economically practicable for several reasons. First, paper has a tendency to absorb liquids and gases and to impart a taste to and discolor many beverages Moreover, upon absorption of moisture, the paper tends to rupture and expose the cushion material which it overlies. Again, the difficulty of applying a center spot of paper to the cushion disk presents problems altogether different from the use of a facing disk co-extensive with the cushion disk, as for example the facing disclosed in my patent 1,656,614, granted June 17, 1928. A facing which completely covers the cushion disk may be readily united adhesively to the sheet or blank from which the cushion disk is stamped, or in other words, the facing sheet and cushion

sheet are united adhesively, and the laminated disks punched therefrom. But in applying a formed center spot, as distinguished from a sheet, due to the fact that it is necessary to absorb the moisture in the adhesive, and as heretofore explained, during the period of moisture evaporation the spot tends to become displaced. This has presented a problem in large scale production, which manufacturers have not heretofore overcome.

Furthermore, due to the moisture and gas absorbent properties of paper, the exposed edge of the paper spot is of an area which cannot be protected by a facing, such as foil or varnish, since the spot is punched from sheets. This objection I have overcome by using a combination consisting of paper of the character described and a liquid and gas resistant fusible adhesive.

I have found that by using a paper of the character herein described, namely a tough paper having a hard or high-gloss finish, for example, such as is termed a water-finish, the same will not fracture, has an inherent resistance to liquids and gases and serves as an excellent carrier for an exposed or outer facing of varnish and for a backing layer of water-insoluble, heat-fusible and acid and gas-resistant adhesive. I prefer an adhesive having these characteristics and which is also elastic so as to provide an elastic or cushion backing for the varnish layer and the rupturable paper layer.

Extensive commercial use of this new cap has established that it is resistant to acids and alkalies and, therefore, useful in connection with liquids with which a foil spot cannot be employed, and that it is at the same time substantially less expensive than a foil spot cap. Moreover, it does not present the mechanical difficulties which are present in applying a foil center spot. The hard, tough paper serves as an excellent carrier for the varnish film as well as for the gutta percha and instres co-extensive varnish and gutta percha films. The gutta percha serves not only as a medium for uniting the paper and varnish films to the cushion layer, but

constitutes an acid and gas-resistant, water-insoluble, backing layer, thereby preventing moisture, acids or gases which penetrate the varnish film or paper from attaching the cushion layer. Moreover, the use of a hard paper having a water-finish or high-gloss pemits the use of even films of varnish and gutta percha, since the paper does not absorb either the fused gutta percha or the varnish to any appreciable extent. Consequently, it is unnecessary to employ more varnish or thicker gutta percha than is required to cover completely the surfaces of the paper.--

Line 9, cancel "water-leaf finish" and substitute --water-finish, i. e., high gloss finish,--.

Page 10.

Line 5, cancel "e'" and substitute --d'--.

Line 7, after "paper", insert --which has a high gloss or water-finish--.

IN THE CLAIMS

Cancel the claims and substitute:

--28. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid-resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

29. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

30. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

31. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cus ion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

32. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of express paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.--

33. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of water-finish bleached kraft paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.--

REMARKS

This application, as amended, is presented for consideration, and in addition to the patents of record, applicant's attorneys desire to place of record the following patents:

	1,656,614,	Warth,	Jan.	27, 1928,
	1,339,066,	McManus,	May	4, 1920,
	603,108,	Lindemeyr,	April	26, 1898,
	849,960,	Batchelder,	April	9, 1907,
French	463,971,	Montaner & Co.	of	1914,
French	415,794,	American Cord & Seal Co.,	of	1910,
French	413,841,	Premier Bottle Seal Co. Ltd.	of	1910,
British	26,297,	MacCormick et al.,	of	1909,
British	16,075,	Demuth	of	1914.

In order that the Examiner may have before him a complete statement by one who has been actually engaged in the development of the art, we are filing herewith the applicant's affidavit, supported by other affidavits having to do with the facts of commercial acceptance of the invention which are referred to in the Warth affidavit.

As pointed out in the affidavit, applicant has been engaged in development work in the cap art since 1915, and there is probably no one in the United States, or in fact in any country, who has devoted more time to the technical development in connection with the cap industry. It is believed that, in view of the affidavits, little or no comment is required by counsel upon the prior art. Notwithstanding the general reference in a number of prior patents, including the patent to McManus (1,339,066), to the use of a spot and the vague and general disclosures in the numerous foreign patents, the fact remains that no one contributed the final steps necessary to produce a paper spot cap acceptable to the trade and which could be manufactured on a commercial scale economically, until the applicant devoted his energies to this mark. And when all is said and done, it is impossible to

escape the proposition that even the applicant, although experienced for oven ten (10) years in this particular art when he began development work, and with all the resources and technical assistance of the Crown Cork & Seal Co. available, succeeded in producing the completed article and establishing it on a commercial basis only after a period of three (3) years intensive work. The results of this work speak for themselves. The inadequacy of the aluminum and tin foil center spot caps had been recognized for years. Tin foil spot caps could only be used with waters and alcoholic liquors. They could not be employed to cap materials containing acids or alkalies and salts in more than very dilute solutions. Aluminum spot caps were unfitted for acidulated drinks or alkali and salt containing liquids. The result was that for years users of crown caps had been employing for the capping of acidulated liquids, such as vinegar, cider, ginger ales, vegetable juices and fruit juices, either (a) the very expensive crowns containing natural cork disks, or (b) the somewhat less expensive but more unsatisfactory crowns containing composition disks, i. e., granulated cork and a binder

The fact that the large users of the composition cork disks turned immediately to the crown of the present invention, although from 20 to 25% more expensive than the composition cork disk, is conclusive evidence that applicant's contribution to the art is indeed an important one. Among manufacturers who paid more for this article and in whose business the invention supplanted the crown containing the composition cork disk, are the Hoffman Beverage Company, of Newark, New Jersey, which has used over 50,000 gross of paper spot crowns per year since 1928, The Moxie Company of America, and the May Bottling Company of Baltimore. Over a score of former users of the cheaper composition cork crown, without a facing, could be mentioned all of whom have turned to exclusive use of the paper spot cap described in this application.

Among the large distributors in the United States in whose business this invention has supplanted the natural cork crown which was from 20 to 25% more expensive to both the bottler and the manufacturer, can be mentioned the Clicquot Club Company and the Canada Dry Ginger Ale Company. Both of these companies have used the cap of this invention almost exclusively since 1929.

And the outstanding fact is that, in every instance, the crown was adopted by these companies practically without solicitation and without advertising or sales pressure of any kind. Each company was simply submitted samples of the invention and permitted to test the same over a period of from four (4) to six (6) months. The result was that the invention was adopted by these companies of their own volition as a contribution to the art superior to anything previously available. And in many instances, e. g., Hoffman and Moxie, the article was purchased at a price substantially higher than the price paid for the crowns previously used.

The fact that applicant's invention has made possible a saving of from 20 to 25% in the cost of manufacturing caps suitable for the bottling of high grade ginger ales, such as Clicquot and Canada Dry, is, of itself, strong evidence of invention; particularly in view of the further fact that the manufacturers have quickly adopted the product. But this is not all. Not only may the product be manufactured at a substantial saving in cost, but it is far superior to the more expensive natural cork disk. It does not impart taste to beverages, such as ginger ale, and, therefore, avoids the loss of large volumes of bottled product as frequently occured when crown caps with natural cork disks were used. Consequently, manufacturers were willing to pay a premium of from 20 to 25% for the paper spot cap produced by applicant to supplant the composition cork crown.

These are facts which are fully set forth in the accompanying affidavits, and need no discussion by counsel.

PRIOR ART

Of the prior patents of record, it is thought that none is more pertinent than the patent to McManus (1,339,066). The patentee, McManus, is the President of the Crown Cork & Seal Company, Inc., assignee of the present application. Although his patent discloses broadly the use of a center spot of paper and mentions the paper disc f as one "made of a hard parchment paper, or any other paper so treated as to make it non-absorbent", the affidavit of the applicant shows that, notwithstanding this disclosure, there remained a final contribution to be made to this art in order that paper spot caps for the sealing of many beverages or materials with which metal foil spots could not be used remained to be developed. After a period of experimental work extending over several years, applicant accomplished this result and gave the world the product for which the groundwork had been laid by McManus. But the final steps and those which made the product a commercially useful and successful one were those of the applicant.

Admittedly, applicant's invention is an improvement upon the basic development of McManus; but that does not negative invention. The cases are numerous where an inventor utilizing the broad ideas disclosed by an earlier worker in the art has made the device more successful and established the same on a firm commercial basis.

> "Devices and publications leading up to, but not fully accomplishing, a desired end, do not anticipate an invention which for the first time effectively meets all requirements and successfully accomplishes such end." Truax v. George F. Childs Adjustable Parlor Chair Co., 152 F. 709 (III).

Furthermore, it is true that the materials of applicant's product are old, per se, but it is undeniable that applicant, by a selection of old elements, has produced a new combination and has accomplished results which heretofore had not been ac-

complished. The established commercial success of this invention which has been adopted by practically all leading manufacturers in place of both more expensive and less satisfactory articles theretofore available and in place of less expensive and less satisfactory articles, establishes the invention as well entitled to the liberal treatment held proper by the Supreme Court in Kibel Process Company v. Minn. and Ontario Paper Co., in which Chief Justice Taft, speaking for the Court said:

> "The fact that in a decade of an eager quest for higher speeds this important chain of circumstances had escaped observation, the fact that no one had applied a remedy for the consequent trouble until Kibel, and the final fact that when he made known his discovery, all adopted his remedy, leave no doubt in our minds that what he saw and did was not obvious, and did involve discovery and invention."

When all is said and done, the following facts remain as undisputed.

1. In the face of the disclosures in the prior art no one had provided a cap which would overcome the defects of the expensive natural cork crown disk which alone was useful, although feebly so, in connection with the bottling of acidulated liquids or the defects of the less satisfactory and somewhat less expensive cork composition disks.

2. The industry had for years prior to this invention recognized the limited field of usefulness and the almost prohibitive expense of the metal foil "center spot" caps.

3. Although applicant had before him the disclosures of the prior art, the development of this invention required a long period of experimental work.

4. There is no reference which discloses the combination of elements defined in the claims, and no reference discloses a cap which could be commercially used either in place of or in competition with the cap of applicant's invention.

5. This invention, when offered to the trade by applicant's assignee, the Crown Cork & Seal Company, was immediately adopted, and it supplanted caps previously used for the same purposes. In this field, it was universally found more satisfactory than the more expensive natural cork caps and it was universally adopted as more satisfactory than the less expensive composition cork crowns previously used.

Under these circumstances, we submit that to this case very aptly applies the language of the Supreme Court in Diamond Rubber Company v. Consolidated Rubber Tire Co., 220 U. S. 428. In that case the Court said:

> "Knowledge after the event is always easy, and problems once solved present no difficulties, indeed, may be represented as never having had any, and expert witnesses may be brought forward to show that the new thing which seemed to have eluded the search of the world was always ready at hand and easy to be seen by a merely skillful attention. But the law has other tests of the invention than subtle conjectures of what might have been seen, and yet was not. It regards a change as evidence of novelty, the acceptance and utility of change as a further evidence, even as demonstration."

The fact that this invention has supplanted the prior art devices makes particularly pertinent the statement of the Court of Appeals in in re Thomson C. D. 1906, p. 566:

> "The testimony going to show the practical success of the applicant's combination, the truth of which is substantially conceded, is entitled to material weight. Owing to the very serious difficulties, which appear to have been successfully overcome by the applicant, other electrical train-lighting systems have not gone into general use. The demand for an improved system has been an urgent one for years, and yet no other inventor, or electrical expert, with all the knowledge afforded by prior patents and constructions, has succeeded in devising a system answering this demand. It may be laid down as a general rule, though perhaps not an invariable one, that, if a new combination and arrangement of known elements produced a new and beneficial result never attained before, it is evidence of an invention."

Respectfully,

JJD:U

Attorneys.

1392

1636

Letter #22



IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895

Div. 62.

* * *

CITY OF BALTIMORE)
: ss.
STATE OF MARYLAND)

Albin H. Warth, being first duly sworn, deposes and says:

I am the applicant identified in the above entitled application for patent and am of legal age.

Since approximately 1916, I have been chemical director in charge of the laboratory of the Crown Cork & Seal Co., Inc. and its predecessor Crown Cork & Seal Co. of Baltimore City.

Among my duties have been the testing of materials furnished for the manufacture of crown caps and the development of new materials for the manufacture of caps as well as the development of new types of caps and closures.

Since 1924, I have given particular attention to the development of crown caps of the center spot type. This type of cap consists of a metal shell having the usual cushion disk therein, and the cushion disk is faced by a disk of protecting material united to the cushion disk.

Prior to the development of the invention disclosed in my above entitled application, crown caps consisted of the following types: 133/11

1. Caps having a cushion disk of natural cork.

2. Caps having a cushion disk of granulated cork and a binder.

3. Center spot caps, i. e., embodying a composition or natural cork disk provided with a facing disk of smaller diameter than the cork disk.

The invention of the present application relates to the third type of cap. Before the invention of this application, center spots were formed from only two materials, namely (a) tinfoil and (b) aluminum foil. Spots of metal foil, were the only spot caps commercially available. Although the trade generally was desirous of obtaining "center spot" caps for numerous materials, the use of the tin and aluminum spots was very limited. In the first place, such caps were almost prohibitively expensive, and the handling of metal foil presented many mechanical difficulties due to its flimsy and inelastic character. Moreover, the tin spot had a very limited field for use, being not at all resistant to acids or acidulated liquids, and resistant to only very dilute alkalies and salts. The aluminum spot was also limited in its application, being non-resistant to acids, except weak inorganic acids in solutions not in excess of two-tenths of one per cent, and non-resistant to alkalies or salts in any strength, even as low as one-half of one per cent. Moreover, the aluminum spot tends to decolorize the material within the capped vessel, such as the natural pigments of fruits and vegetable juices.

As a result of the limited applicability of the metal foil center spot caps, it was necessary for bottlers and manufacturers generaly to use caps of very expensive character, and which contained a cushion disk of natural cork. Caps having natural cork cushion disks before the present invention were from twenty to 33 1/100

twenty-five per cent more expensive than even foil center spot caps. Notwithstanding this additional expense, natural cork disks were very unsatisfactory in connection with many materials, particularly those which are highly carbonated, such as gingerale. Yet the principal manufacturers or bottlers of high grade products did not have available for beverages, such as gingerale, or acidulated or alkali containing liquids, any cap more satisfactory than the cap provided with a cushion disk of natural cork. Many bottlers or manufacturers of less prominent brands used for such liquids or beverages, caps having a composition cork disk, i. e. granulated cork and a binder. Such caps were useful where the beverages were used after bottling within a reasonable time, and would retain purity and clarity over relatively short periods such as up to six weeks. These composition cork caps were somewhat less expensive than the center spot caps and were obtainable at from twenty to twenty-five per cent less than the center spot caps.

Generally, therefore, there was available in the trade at the time of the invention of this application for the capping of acidulated, alkali and salt containing liquids, only the natural cork cushion disk caps or the composition cork cushion disk caps. These caps were used, although unsatisfactorily, in connection with fruit juices, vegetable juices, gingerale and on many acidulated beverages for export purposes, although in the latter, due to the necessity for long holds, only the natural cork disks could be used.

Aside from the expensive character of the natural cork caps, the matter of defective caps due to the difficulty of obtaining sufficiently high grade cork, which became obtainable with greater difficulty as the use of crown caps increased, another very serious objection was the inability to avoid imparting of taste to many beverages. This was due to the tanic acid in the cork and

residues of the bleaching materials employed in preparing the cork. I recall one large customer of the Crown Cork & Seal Co. who in one instance had to destroy several thousand dollars worth of gingerale in Baltimore City because the natural cork disks, although the most expensive and unquestionably the best cap available at the time, imparted such an objectionable taste to the gingerale that it could not be sold. This expense had to be borne by the Crown Cork & Seal Co. as the manufacturer of the caps. Faced with this situation, I began to develop a center spot cap which could be used in the capping of fruit juices, vegetable juices, cider, vinegar and generally in th capping of acidulated liquids or materials with which the tin and aluminum center spot cap could not be used.

Although crown caps had been manufactured with a paper facing blank before that date, as disclosed for example in my patent 1,656,614, the manufacture of a crown with a paper "center spot" presented many difficulties which the several years of manufacture of an over-all paper facing did not help to solve.

First, although paper of the center spot cap would appear to be less likely to rupture or fracture because it leaves an exposed surrounding area of the cushion material for direct engagement with the container, I found that the danger of rupture of the center spot was equal to, if not greater than, the danger of rupturing the over-all paper facing disk. This problem of fracture or rupture is one which I had never completely overcome, although the Crown Cork & Seal Co. had for many years manufactured for general use a crown cap having a paper facing completely covering the cushion disk.

Secondly, the center spot of paper presented a free edge of paper which was necessarily uncovered and exposed as dis-

tinguished from the protected edge of the paper facing which completely covered the cushion disk. Extended experiments showed that this exposed edge of the paper absorbed moisture and gases, thereby causing the paper under the high pressures to which it is subjected in the capping operations to rupture; and in many instances, if actual rupture did not take place, the paper became so permeated with gases and moisture as to per it the contents to attack, though the paper, the cushion disk.

Third, in addition to these problems of developing a paper spot which was substantially fracture-proof and impermeable to acids and gases, there was presented the problem of providing a paper spot which would not impart taste to liquids and beverages, particularly of a character in which any foreign taste became immetiately objectionable. This is particularly true with respect to gingerale. There was also the problem of developing, particularly for high pressure beverages or liquids, such as gingerale, a complete or finished center spot of the proper thickness. Although as before explained, crown caps had been provided with a paper facing completely covering the cushion disk, such use over a period of several years contributed little or nothing to the problem of producing a paper center spot. Papers having a thickness of substantially .004 had been used in this connection, but were found entirely unsatisfactory for center spots with highly carbonated or high pressure beverages for the reason that it was found the beverages quickly penetrated this paper. On the other hand, I found that papers having a thickness in excess of .007 were too inflexible and would not produce a satisfactory seal, and it was only after extensive experiments that I determined upon a critical thickness for paper spots, of .005 to .0065, particularly when such spots are intended for capping high pressure liquids.

In addition to the foregoing problems which had to do with a cap for general use, it was necessary to arrive at their solution with due consideration to the question of manufacture, since it was necessary to place an article of this nature upon the market within the range of price of caps already available. Obviously, the manufacturing problems which the article presented, had to be solved without a material increase in the manufacturing cost from the standpoint of manufacturing operations. It was found that the final determination of the character of materials to be used in the manufacture of the paper center spot cap had to take into consideration a change in the established manufacturing methods for center spot caps and to which I refer hereinafter.

Although I was aware that earlier patents had referred to the possible use of a center spot of paper, for example the patent to McManus 1,339,066, granted May 4, 1920, the fact is that there remained to be developed, in view of the problems above mentioned, a paper center spot which would overcome the objections above described an there was required, although I had available the entire laboratory and commercial resources of the largest manufacturers of crown caps in the world, a period of research extending over several years, before I was able to produce a crown cap having a center spot generally useful for the capping of materials for which the tin and aluminum center spots could not be used. The cap produced is disclosed in the above identified application. First, I found after testing dozens of papers, that only two were suitable. These two papers were characterized by (a) hardness and (b) a water-finish or high gloss finish. They were express paper, which is a water-finish paper, and bleached kraft paper having a water-finish. I found that these two papers had inherently a natural

resistance to the absorption of moisture and gases. I further found that they formed an excellent carrier for a coating of protecting or resistant varnish which I had applied to the absorbed surface of the paper.

I further found that even these papers, notwithstanding their natural resistance to liquid and moisture, and, therefore, their reduced tendency to rupture, could not be used satisfactorily with an ordinary adhesive for uniting the same to the cushion disk. Previous to my invention, various types of adhesive had been employed in the cap art, for uniting a facing or spot(metal foil) to a cushion disk. The Crown Cork & Seal Co. had used for many years a mixture of Burgundy pitch and other adhesive materials which constituted an adhesive resistant to liquid. But an adhesive merely moisture resistant was not suitable for a center spot cap. In addition to this adhesive, a large number of other adhesives have been used in the crown cap art, but I found none suitable except the one having the characteristics (a) water-insolubility, (b) heat fusilibity, and (c) acid resistance. The only adhesive available at the time having these characteristics I found to be gutta percha, or a mixture of gutta percha and other materials, making the adhesive essentially gutta percha. I discovered that this particular adhesive had another characteristic which made it of extreme value, namely its inherent elasticity which afforded an elastic cushion or backing for the paper. By employing gutta percha, I found that any moisture or gases which tended to permeate the exposed edge of the center disk of paper, notwithstanding the facing of varnish on the paper, or which permeated through the varnish facing, since no varnish is entirely impermeable, prevented the gases or liquid from attacking the cushion disk. As a consequence, the final article used, after approximately three years of experimental work, was a combination of (a) a varnish facing (b) a hard, tough paper having a high gloss or water-finish, e.g. express paper or water-finish bleached kraft, and (c) an elastic,

water insoluble and acid resistant adhesive, such as gutta percha.

The final development of this spot which proved to be satisfactory in use, presented a number of problems from the standpoint of economical production on a commercial scale. As will be understood, manufacturing plants had already installed machines for the manufacture of center foil spots, and it was necessary, therefore, that I design my cap so that it might be manufactured with existing machinery. Consequently, the selection of these materials was made with concurrent tests as to the responsiveness of the materials to the machinery. For example, I found that the use of a heat fusible adhesive with a paper facing presented manufacturing difficulties, not presented in the manufacture of a foil center spot cap, due to the marked difference in the heat conductivity of the varnished paper as compared to the foil. Nevertheless, I found that by using a gutta percha film, only of sufficient thickness to provide a complete coating for the paper, and employing paper not in excess of .007 and of the character described, it was possible by slightly increasing the heat application in the machines to apply the paper spots to the cushion disks in the same machines previously used for the manufacture of foil spot caps. This matter of manufacturing operation required a considerable period of experiment, and it was not until 1926 that the problem had been completely solved, and large scale production on a commercial basis could be instituted, although two sales in 1927, primarily for experimentation had been made. The commercial results obtained by the invention are a matter of record in the Crown Cork & Seal Co.

BLANK

PAGE

BLANK

PAGE

Briefly, they were as follows:-

In 1927, three of the largest manufactures of gingerale in the United States, Cliquot Club Co., Canada Dry Gingerale Co. and Gosman Gingerale Co., were using exclusively crown caps having a cushion disk of natural cork. For these caps the said companies were paying from forty to fifty per cent more than less prominent manufacturers were paying for the only other type of crown then used in connection with gingerale, namely, caps having a cushion disk of composition cork. Among the latter were the Hoffman Beverage Co. of Newark, New Jersey, the May Bottling Co. of Baltimore, Maryland, and the Moxie Company of America, of Boston, Massachusetts.

Within a year, or at the most two years, after this invention had been offered to the trade, the users of natural cork disks such as Canada Dry and Cliquot and Gosman, discarded the natural cork disk for the paper spot disk of the present invention and this type of cap has since been used by these companies almost exclusively.

For the new paper center spot cap, these manufacturers paid from two to three per cent less than the natural cork disk and found the center spot cap much more satisfactory. It represented, therefore, a substantial saving both to the bottler and to the manufacturer.

Not only did the former users of natural cork disks turn to the center spot cap, but the same very largely supplanted the composition cork disk, although the paper center spot cap sold to the users of the composition cork disk at a price forty to fifty per cent higher than they had been previously paying for the composition cork disk. For example, in the year 1927,

Crown Cork and Seal Co. sold exclusively to the Hoffman Beverage Co. of Newark, New Jersey, composition cork disks. In 1928, the Hoffman Beverage Co. purchased over fifty thousand gross of paper spot caps, and has continuously used these caps almost exclusively since that date, paying for the same a considerably higher price than they had previously paid for the composition cork cap. The center spot cap supplanted the composition and natural cork caps substantially throughout the gingerale industry by 1930 and it is now the standard cap for all leading brands of gingerale.

Furthermore, in the capping of highly carbonated beverages which are also acidulated, the paper center spot cap of this application has almost completely supplanted the plain natural cork or composition cork cap.

Whether substituted for the formerly higher price natural cork cap crown, as by Cliquot Club, Canada Dry and Gosman, or for the formerly lower priced composition cork crown, as by Hoffman Beverage Co., Moxie Co. and May Bottling Co. of Baltimore, the paper center spot cap has in every instance been found to be superior to both of the previously used types of crowns.

In the introduction of the paper center spot crown, the Crown Cork and Seal Co. has done virtually no advertising; the article has sold itself. Aside from one or two formal announcements in trade papers that the Crown Cork and Seal Co. was manufacturing paper spot crowns, there has been no advertising of this article. Its adoption by the manufacturers mention above, and numerous others, was the result of merely submitting to each manufacturer a few sample caps with the request that they test the same. They were tested by the Cliquot Club Co. and the Canada Dry Gingerale Co. over a period of six months

before being adopted and were then ordered without further solicitation on the strength of the tests conducted by these Companies. The same statement applies to the adoption of this article by other large manufacturers of acidulated beverages and of other beverages with which the tin spot and aluminum spot cap could not be used.

Further deponent sayeth not.

Albin H. Wasth

Baltimore, Maryland
April 21st, 1932

Subscribed and sworn to before me, this 21st day of April, 1932.

Florence M. Deckmatter
Notary Public

MY COMMISSION EXPIRES MAY 1 1933

(SEAL)

1403

1647

Affidavit #23

APPLICATION DIV. U.S. PATENT OFFICE MAY 16 32

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895. Div. 62.

* *

CITY OF BALTIMORE)
:SS.
STATE OF MARYLAND)

FREDERICK E. FUSTING, being first duly sworn, deposes and says:

That he is Vice-President of the Crown Cork & Seal Company, Inc., having its plant in Baltimore, Maryland, and has been an officer of said company and of its predecessor company, The Crown Cork & Seal Co., of Baltimore City, for over fifteen (15) years.

That he is familiar with the disclosure in the above entitled application which covers the so-called "paper spot" crown first marketed by the Crown Cork & Seal Company, Inc. on a commercial scale in 1928.

That for many years prior to 1925 there had been widely recognized in the crown cap industry a need for a crown cap which would be useful in the bottling of many materials with which "spot crowns" theretofore manufactured could not be employed. Prior to 1925, the only center spot caps available were provided with spots of either tin foil or aluminum foil. These caps could not be employed with acid containing materials, such as fruit juices and ginger ale. For such products it was customary for bottlers to employ crowns having a cushion disc of either (a) natural cork or (b) cork composition material.

The natural cork disc crowns were objectionable because of their very high price and the difficulty in obtaining suit-

able natural cork, particularly for capping high pressure beverages, such as ginger ales. The cork composition disc crowns were even more unsatisfactory.

Prior to 1928, aside from two experimental sales, the Crown Cork & Seal Company had not manufactured a paper spot crown, and to deponent's knowledge no other manufacturer of crown caps had manufactured a cap having a center spot of any material other than foil.

Referring, for example, to the bottlers of ginger ales, such as Canada Dry Ginger Ale and Clicquot Club, these manufacturers prior to 1928 employed crowns having therein discs of natural cork. For these crowns they paid from 26½ to 28½ cents per gross. Yet these crowns, notwithstanding their high price, were not satisfactory. In 1924 the Gosman Ginger Ale Company, of Baltimore, Maryland, met with the loss of a large quantity of bottled ginger ale, due to unsatisfactory crowns of natural cork, and this resulted in a total loss of over Six Thousand Dollars ($6,000.).

Other manufacturers of ginger ale were using crowns having a disc of cork composition and for the same were paying from 17½ to 18½ cents per gross. These crowns were also recognized as not satisfactory. But aside from the natural disc crowns which were considerably more expensive, there were no other crowns on the market even reasonably suitable.

In 1928, when the Crown Cork & Seal Company, Inc., began commercial manufacture of the "paper spot" crown of the above entitled application, over sixty-four thousand (64,000) gross of these crowns were sold. They supplanted in use during 1928 principally the previously used composition cork disc crowns. The users of the new paper spot crown in 1928 paid for the paper spot

crowns 40% more than they had previously paid for the composition cork disc crowns.

In 1929 the Crown Cork & Seal Company, Inc., shipped over one hundred thousand (100,000) gross of paper spot crowns. During that year they supplanted not only the composition cork crowns, but, to a very large extent, the natural cork disc crowns. They were sold to the former users of the natural cork disc crowns at a very slightly lower price than the natural cork disc crowns.

In 1930 the Crown Cork & Seal Company, Inc., sold over two million one hundred thousand (2,100,000) gross. In 1931 the Crown Cork & Seal Company, Inc., sold approximately two million (2,000,000) gross of paper spot crowns.

By 1931, such companies as Canada Dry, Clicquot Club Company, Cosman Ginger Ale and the Moxie Company of America, had adoptedthe paper spot crown almost exclusively in place of the previously used natural cork disc crowns. Other companies, such as the Stroh Products Company, The C. E. May Company and the Hoffman Beverage Company had adopted the same instead of the formerly used composition cork disc crowns and at a price approximately 40% higher.

In other words, the new product had almost completely supplanted the old of natural cork disc and composition cork disc crowns by 1931 in the business of the large bottlers of ginger ale in the United States. The product has been marketed with continued success since its introduction in 1928 and is generally recognized by the trade as far superior of any product previously available.

The increase in sale from less than one hundred thousand (100,000) gross in 1928 to over two million (2,000,000) gross in 1930 was accomplished virtually without advertising, and I can find no record of any advertising expense with reference to

the paper spot crown other than one or two simple announcements in trade journals that the company was making at this price. In practically every instance, there was no particular effort made to sell the paper spot crown. The same was merely submitted to companies such as Canada Dry and the Clicquot Club Company. After months of test, these companies adopted the new product of their own volition in preference to the crown they had previously used.

Further deponent sayeth not.

Frederick E. Fuetsch

Subscribed and sworn to before me this 6th day of May, 1932.

Florence M. Seeberg
Notary Public

MY COMMISSION EXPIRES MAY 1, 1933

(SEAL)

1407
o
1651

IN THE UNITED STATES PATENT OFFICE

COMMISSIONER
AUG 25 1932
OF PATENTS

Albin H. Warth,

BOTTLE CAPS & METHOD
OF MAKING SAME,

Filed May 5, 1929,

Ser. No. 360,895.

* *

August 25, 1932

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

Since the interference in which this application was involved has been reopened (60,931), it is requested that certain papers filed subsequent to the dissolution order now vacated, and which have not been formally entered in the application be sealed. The papers referred to are the following:

Paper 21, dated April 20, 1932;

Paper 22, dated April 22, 1932;

Paper 23, dated May 16, 1932.

Respectfully,

Lueker, Wendt & Ridley & Lueker

Attorneys.

APPROVED

AUG 24 1932

Thos. E. Robertson

COMMISSIONER OF PATENTS

JJD:U

Div. 62 Room 3876 FWT:GB

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 24

All communications respecting this application should give the serial number, date of filing, and name of the applicant

Sept. 29, 1933.

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents.

Cushman, Bryant, Darby & Cushman,
American Security Bldg.,
Washington, D. C.

Applicant: Albin H. Warth

Ser. No. 360895
Filed May 6, 1929
For Bottle Caps and the Method of Making Same.

MAILED
SEP 29 1933

Additional references made of record:

Warth	1,899,783	Feb. 28, 1933	215-39 (113)
Warth	1,899,784	Feb. 28, 1933	215-39 (114)

Claims 1 to 6 and 13 to 27 are rejected on grounds of disclaimer, based on paper No. 28 filed by applicant in Interference No. 60,931, in which the applicant was involved. It is stated therein:

> "That recently deponent had occasion to examine the proofs available in support of the case for the party Warth in this interference, and that to deponent's surprise it was found that the assignee of the application, Crown Cork & Seal Company of Baltimore, Maryland, had been manufacturing and selling caps having therein (a) a cushion liner (b) a paper facing united to the cushion liner by (c) a waterproof adhesive, and (d) a varnish facing on the paper resistant to acids and alcohol.
>
> "That deponent has found that this material has been manufactured and sold by the Crown Cork & Seal Company, as well as by others in the cap industry almost continuously since 1915 or 1916."

This statement is held to be an admission against interest and is binding against the applicant.

Claims 13 to 27 are further rejected on grounds of estoppel based on paper No. 4, wherein applicant affirms:

> "That the invention was reduced to practice by the manufacture and use of material of the character defined in each count on or about the first day of June, 1915, at Baltimore, Maryland.
>
> "That the material of the character defined in each count has been made in large quantities since June 1, 1915."

[illegible] is rejected as drawn to an obvious

1409

1653

use for the material which applicant, in his preliminary statement referred to above, has declared to have been "reduced to practice by the manufacture and use", etc., and "made in large quantities since 1915".

Claims 1 to 6 and 13 to 27 are further rejected as unpatentable over the above cited patents to Warth on grounds of double patenting. Attention is directed to the claims of the Warth patents in comparison with the claims of the instant case. No patentable distinction is seen in applicant's present claims over the claims in the Warth patents.

W.W. Cochran

Examiner.

WWT

1410

1654

DOCKET DIVISION
DEC 11 1934
U.S. PATENT OFFICE
Special

DE 10 1934

EDGAR J. CLARKSON
PATENTS AND PATENT CAUSES
1426 - G STREET N. W.
607 ALBEE BUILDING
WASHINGTON, D. C.

360895 - 25

Dec. 11, 1934.

Hon. Commissioner of Patents

Washington, D. C.

Sir:

Please furnish as soon as possible certified copy of the file wrapper and contents of the following application:

E. H. Warth
Ser. No. 360,895
Filed May 5, 1929
Intf. No. 60,931

It is to be noted that this application was divided and an application filed as a division Ser. No. 492,546 October 31, 1930, which eventuated into patent No. 1,899,783 dated Feb. 28, 1933.

Inclosed find $2.90 to cover the cost of the above.

Yours very respectfully,

Hauff & Warland

Hauff and Warland
c/o E. J. Clarkson
Box. 350.

ark
R.F.W
Dec 12/34

1411

1655

4.6 29

W 50
198

421

1929

CONTENTS:

1. Application papers.	✓	26.
2. Letter (Atty)	Jan. 23, 1930	27.
3. Amdt E.	Feb 26 1930	28.
4. Rej.	JUN 28 1930	29.
5. Paper & Appeal	Aug 6/1930	30.
6. Amdt B	Aug. 30, 1930 (Amt. Sept. 19, 1930)	31.
7. Rev and Power of Atty by Assignee	Aug. 29/30	32.
8. Notice of Revocation and Acceptance	Sept 11/30	33.
9.	OCT 7 - 1930	34.
10. Letter	Oct. 27-1930	35.
11. Amendt E	Oct. 31-1930	36.
12. Appl. Oath	Nov. 3 1930	37.
13. Rejection	NOV 24 1930	38.
14. Amendt D	Nov. 28-1930	39.
15. Final Rej.	DEC 2 1930	40.
16. Amdt E + Affdt (not entd)	Dec 3-1930	41.
17. Letter	DEC 3 1930	42.
18. Notice of Appeal	DEC 12 1930	43.
19. Atty Letter		44.
20. Sub Power of Atty	Sept 30, 1931	45.
21. Amendment N (not entd)	Apr. 20/32	46.
22. Letter	Apr. 22/32	47.
23. Affidavit	May 16/32	48.
24. Assignment	SEP 29 1933	49.
25. Petition for Reissue granted	Dec 11, 1944	50.

1411

BLANK

PAGE

1412

G. E. STAHL.

CLOSURE FOR BOTTLES, JARS, AND OTHER RECEPTACLES.

APPLICATION FILED MAY 10, 1915.

1,215,737. Patented Feb. 13, 1917.

Fig. 1.

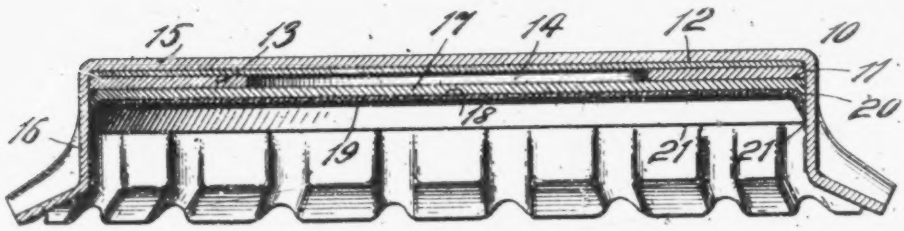


Fig. 2.

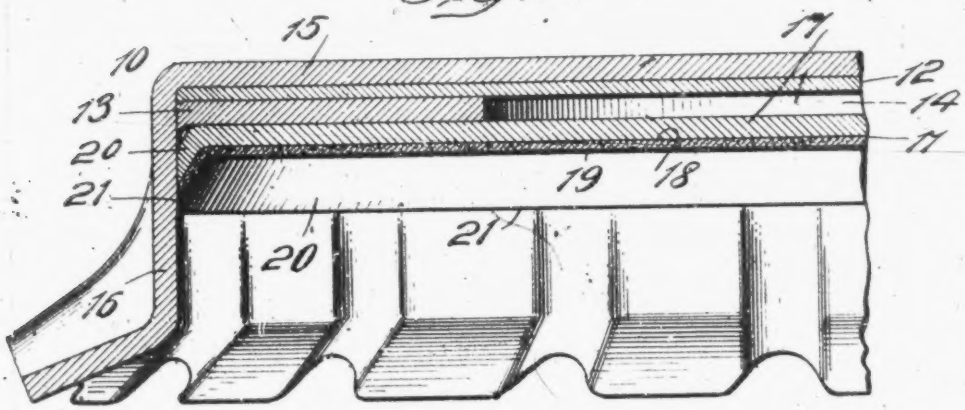


Fig. 3.

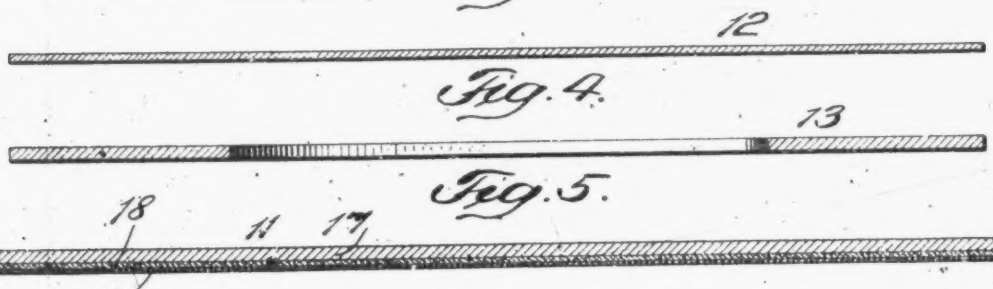
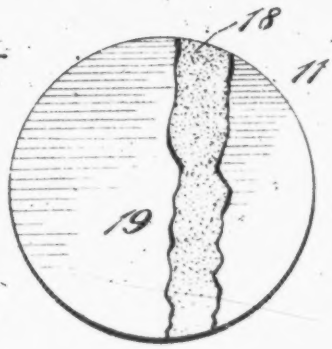


Fig. 4.

Fig. 5.

Fig. 6.



WITNESSES:

Julian H. Hall

Arthur Marion

INVENTOR

GEORGE EMIL STAHL

BY Chas. C. Gill

ATTORNEY

BLANK

PAGE

BLANK

PAGE

UNITED STATES PATENT OFFICE.

GEORGE EMIL STAHL, OF JERSEY CITY, NEW JERSEY.

CLOSURE FOR BOTTLES, JARS, AND OTHER RECEPTACLES.

1,215,737. Specification of Letters Patent. Patented Feb. 13, 1917.

Application filed May 10, 1915. Serial No. 26,978.

To all whom it may concern:

Be it known that I, GEORGE EMIL STAHL, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Closures for Bottles, Jars, and other Receptacles, of which the following is a specification.

The invention pertains more particularly to bottle closures of the crown cap type, and resides in a novel lining or interior structure to be applied within the dome of the cap for engagement with the upper edge of the bottle or receptacle to be sealed.

Bottle caps are ordinarily made of sheet tin and contain a rubber ring or a disk of cork or other substance to seal the bottle mouth. These caps have proven inefficient in many instances in respect of their sealing action, particularly in their use on bottles containing beer, due to the necessity of subjecting beer to a high temperature while in the bottles. The pasteurizing of the beer results in an expansion of the gas within the bottles, and considerable difficulty has heretofore been encountered in so sealing the bottles as to prevent the escape of the expanded gas.

In accordance with my invention I provide means for effectually resisting the escape of the expanded gas and maintaining the bottle in a properly sealed condition.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is an enlarged central vertical section through a bottle cap having an interior sealing structure embodying my invention;

Fig. 2 is a sectional view on a still larger scale of a portion of the same;

Figs. 3, 4 and 5 are central vertical sections, on an enlarged scale, of the several layers of material employed by me in the formation of the interior structure of the cap, and

Fig. 6 is a bottom view, partly broken away, of the lower laminated disk forming a part of the interior structure of the cap.

In the drawings 10 designates a sheet metal cap of the crown type containing the sealing structure of my invention, this structure comprising, in the preferred embodiment of the invention, a lower laminated sealing disk 11, an upper crown disk 12 and an intermediate ring 13 within which is created within the outline of its inner annular edge and the facing surfaces of the disks 11, 12, a substantial air chamber 14, which it is one of my purposes to create and which is utilized, in accordance with my invention, in effecting and maintaining the proper sealing of the bottle to which the cap may be applied.

The cap 10 is stamped in the usual manner from sheet metal and is commonly designated as a "crown cap," said cap comprising an upper or dome portion 15 and a depending edge flange 16.

The cap 10 may be of any of the usual modified forms of crown caps and is not novel with the exception of its use in connection with the interior or lining structure I provide therein to secure the effectual sealing of the bottle.

The several parts of the interior structure of the cap will preferably vary in thickness and in some respects in character. The disk 12 will preferably be formed from a reasonably thin sheet of paper and will lie directly against the lower surface of the dome of the cap 10. The ring or washer 13 will be formed from jute paper stock or other suitable material and will be considerable thicker than the disk 12 so that a commodious air-chamber 14 may be created within the outlines of said disk or washer 13 and interiorly of the sealing structure of the cap. The disk 11 may be of any suitable material but in the preferred construction is of laminated character and composed of a disk or layer 17 of jute paper stock, a layer of gutta percha, or equivalent substance, 18, adhering to the lower surface of the disk or layer 17, and a very thin layer of paper tissue 19 adhering to the lower surface of the layer of gutta percha 18. The disk 12 and ring or washer 13 are flat and closely engage, at their edges, the inner upper edges of the cap 10. The disk 11 is initially punched flat from a laminated sheet (Fig. 5) and then forced into the inverted cup-shape shown in Fig. 2 whereby the edges of the disk become downwardly flanged, as at 20, and a lower feather edge 21 is formed closely engaging the inner surfaces of the sides of the cap. The disk 11 presents a more extended surface to the cap than would be the case if the flange 20 were omitted and the plain edge of the disk

merely extended out to the side wall of the cap, as will be obvious from an inspection of Fig. 2, and in addition the presence of the flange 20 affords extended surfaces to engage the upper edge or lip of a bottle neck and adds to the effectiveness of the seal.

The layer of gutta percha 18 is impervious to moisture and protects the layers between it and the top of the tin cap from contact with the beer or other liquid, said layer of gutta percha keeping the layer 17, ring or washer 13 and disk 12 dry. The layer of gutta percha 18 also preserves the cushioning character of the sealing structure and in itself contributes to the efficiency of the sealing structure. I also call attention to the fact that in the downward flanging of the edges of the sealing structure the edges of the gutta percha disk 18 become placed in direct contact with the vertical sides of the flange of the cap and create therewith, when the cap is subjected to pressure and the heat of the pasteurizing process, a hermetic seal trapping within the crown of the cap above said disk whatever air there may be therein, so that said air may, in accordance with my invention, act by expansion for effectually maintaining the sealing of the bottle or other receptacle. The downward flanging, as at 20, of the sealing structure arches the lower portion of such structure and when the structure is placed within the cap preparatory to the cap being applied to the bottle, it will maintain its position therein. The thin layer of tissue paper 19 need not cover the whole lower surface of the layer of gutta percha 18 but for convenience of manufacture does do so, and said layer of thin tissue paper 19 is utilized mainly to prevent the heat during the pasteurizing of the beer from so softening the gutta percha 18 as to cause it to unduly adhere to the edges around the mouth of the bottle to which the cap may be applied. The presence of the tissue paper 19 is sufficient to render it certain that the gutta percha will not become unduly affixed to the edges of the mouth of the bottle during the pasteurizing process, and when employed eliminates all danger of the laminated disk 11 adhering to the bottle and leaving the cap 10 when the cap is removed by the usual cap-lifter from the bottle. The disk 11 is punched from a laminated sheet such as I show in Fig. 5 composed of the three layers all closely pressed together and adhering to one another, the paper tissue being about .003 thick and becoming substantially impregnated with the gutta percha and firmly and closely affixed thereto. In Fig. 6 I illustrate the tissue paper layer 19 as having been partly torn away to disclose the gutta percha layer.

The interior or lining structure of the cap is novel and important regardless of the air chamber 14, but the presence of said air chamber adds very greatly to the efficiency of the cap and lining structure and is a characteristic feature of my invention. The presence of the air chamber 14 inclosed within the lining structure and so located as to be concealed, thereby confining the air therein, is of particular importance especially during the pasteurizing process or processes of any nature when the temperature should change the contents of the receptacle, at which time the air within said chamber expands and acts to bind those portions of the disk 11 adjacent to the inner edges of the mouth of the bottle against said edges, while at the same time the air is prevented from escaping from said chamber. All the layers of the lining structure are of yielding material and hence may closely hug the walls of the cap and the surfaces around the mouth of the bottle, whereby the interior chamber 14 becomes hermetically sealed and the body of air therein is adapted to act by expansion for effectually maintaining the sealing of the bottle to which the cap may be applied.

It is well known that very great difficulty is experienced in preventing the escape of gas from a beer or other bottle under varying degrees of temperature and especially during the pasteurization of the liquid or beer in the bottle, and this is in large part due to the different ratios of expansion of the glass and tin, the tin expanding more rapidly than the glass, and the result of these natural conditions is that when the bottle is subjected to heat the tin cap will first expand and tend to loosen from the bottle mouth and permit leakage of gas, and to meet this condition is one of the main purposes of my inclosed air chamber 14. The expansion of the air in the sealed air chamber 14 opposes the pressure of the expanded gas in the bottle neck and augments and maintains the constant pressure of the disk 11 against the lip of the bottle and especially against the inner edges thereof, the expanded air in the lining structure of the cap compensating for the different ratios of expansion between the tin and glass.

A further characteristic feature of my invention is the provision on the disk 11 of the annular depending flange 20 to afford a sealing and cushioning medium extending outwardly over the upper edges of the bottle mouth. It is highly advantageous also that the disk 11 be covered on its lower face with gutta percha or some equivalent impervious substance whose edges are closely bound against the inner sides of the bottle cap 10. The gutta percha layer 18 being adhesive becomes closely incorporated with the paper layer 17 and impregnates the tissue layer 19, and hence the disk 11, while laminated, is substantially in one integral piece. The presence of the gutta percha

layer 18 is also of importance, owing to the nature of the gutta percha itself, being sufficient in thickness to yield to the irregularities in the top of the bottle mouth and to the inner surfaces of the tin cap and being of a clinging nature and of a character not at all prejudicial to the contents of the bottle.

I have hereinbefore described the preferred embodiment of my invention, but I do not wish to be limited to all of the details further than the scope of the appended claims may require. I desire the privilege of the doctrine of equivalency in respect of the materials of which the several parts of the lining structure are made. I therefore do not desire to be confined to the use of jute paper in lieu of paper of some other name, nor do I desire to be limited to the use of gutta percha as distinguished from gum or some equivalent substance or substances which might not be of the nature of gutta percha or gum but equivalent thereto in effecting the sealing of a bottle, protecting the inner layers of the lining structure from the effects of moisture, and coöperating with the expansion of the air in the air chamber 14 in maintaining the bottle sealed and the gases in the bottle properly confined during the pasteurizing or bottling process to which beer or other liquids may be subjected.

In the drawings I illustrate a single air chamber 14, but if this air chamber were subdivided by partitions into a plurality of air chambers I would regard the then plural number of air chambers as the air chamber of my invention.

What I claim as my invention and desire to secure by Letters-Patent, is:

1. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth and confining air to act by expansion for effectually maintaining the sealing of the bottle, said sealing structure in its lower peripheral part being initially flanged downwardly and closely engaging the flange of the cap and also being impervious to moisture and of a character to adhere at its edges to the said flange so as to make a hermetic seal trapping said air.

2. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth, said sealing structure having an upper cushioning portion and a lower portion initially flanged downwardly along its peripheral edges and closely engaging the flange of the cap and having a lower coating of material rendering the sealing structure impervious to moisture and of a character to adhere at its edges to the said flange, so as to form a circumferential hermetic seal.

3. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth, said sealing structure having an upper cushioning portion and a lower portion initially flanged downwardly along its peripheral edges and closely engaging the flange of the cap and having a lower coating of gutta percha rendering the sealing structure impervious to moisture and of a character to adhere at its edges to the said flange, so as to form a circumferential hermetic seal.

4. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth, said sealing structure having an upper cushioning portion and a lower portion initially flanged downwardly along its peripheral edges and closely engaging the flange of the cap and having a lower coating of gutta percha rendering the sealing structure impervious to moisture and of a character to adhere at its edges to the said flange, so as to form a circumferential hermetic seal, said gutta percha having on its lower surface a thin tissue to prevent it from adhering so tightly to the bottle mouth as to pull the sealing structure from the cap on the uncapping of the bottle.

5. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth and containing a definite air chamber in which a body of air is effectually sealed to act by expansion for maintaining the sealing of the bottle, said sealing structure having at its lower part a layer of gutta percha closely bound thereto and thereby rendering the structure impervious to moisture and to the entrance of gas from the bottle, and said layer of gutta percha being in engagement with the flange on the cap so as to effect a circumferential seal therewith and also adapted to seal along the bottle mouth, whereby the bottle becomes sealed and the air in said chamber becomes effectually confined.

6. A closure for bottles and the like, comprising a metal cap of the crown type having a dome and a depending edge flange, and a sealing structure therein comprising a lower cushioning disk of paper having on its lower side a substance rendering it non-absorbent and non-porous and above said disk a ring of paper within whose interior outline is formed an air chamber, said sealing structure being adapted to engage at its outer edges the side walls of the cap and the edge of the bottle mouth, and said disk initially having a depending edge flange to engage the inner side walls of the cap and the outer edges of the bottle mouth and said air chamber being hermetically sealed to confine therein a body of air to act by expansion for effectually maintaining the sealing of the bottle.

7. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and an edge flange to be crimped on the bottle, and a sealing structure within said cap comprising a yielding body to engage at its outer edge the side walls of the cap and the edge of the bottle mouth and consisting of a lower layer, an intermediate ring layer and a disk top layer, said intermediate layer being open interiorly to form an air chamber between its inner edges and the said lower and upper layers and said layers being closely bound together and protected against the effects of moisture, whereby said air chamber becomes permanently maintained and confines a body of air to act by expansion against said yielding body for effectually maintaining the sealing of the bottle, and said sealing structure being formed along its outer edges with a depending flange closely engaging the inner sides of the cap and adapted to engage the outer side edges of the mouth of the bottle.

8. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and an edge flange to be crimped on the bottle, and a sealing structure within said cap comprising a yielding body to engage at its outer edge the side walls of the cap and the edge of the bottle mouth and consisting of a lower paper layer having bound on its lower surface a covering of gutta percha, an intermediate ring layer and a disk top layer, said intermediate layer being open interiorly to form an air chamber between its inner edges and the said lower and upper layers and said layers being closely bound together, whereby said air chamber becomes permanently maintained and confines a body of air to act by expansion against said yielding body for effectually maintaining the sealing of the bottle, said lower layer at its outer edges being formed with a depending flange closely engaging the inner sides of the cap and adapted to engage the outer side edges of the mouth of the bottle.

Signed at New York city, in the county of New York and State of New York, this 7th day of May, A. D. 1915.

GEORGE EMIL STAHL.

Witnesses:
ARTHUR MARION,
CHAS. C. GILL.

BLANK

PAGE

1417

Oct. 28, 1930. L. G. LANGE 1,779,884

COMPOSITE MATERIAL FOR CONTAINERS

Filed Feb. 3, 1930

Fig. 1.

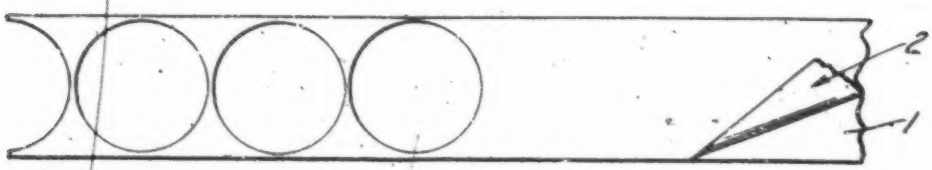


Fig. 2.

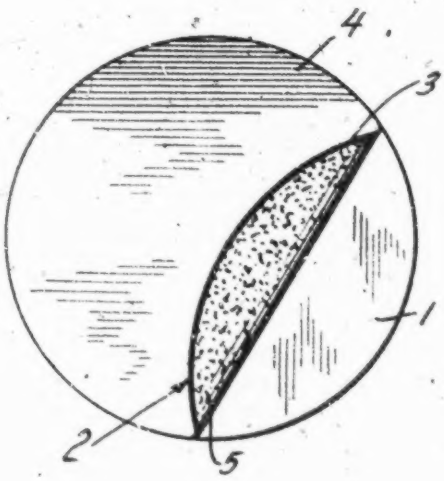


Fig. 3.

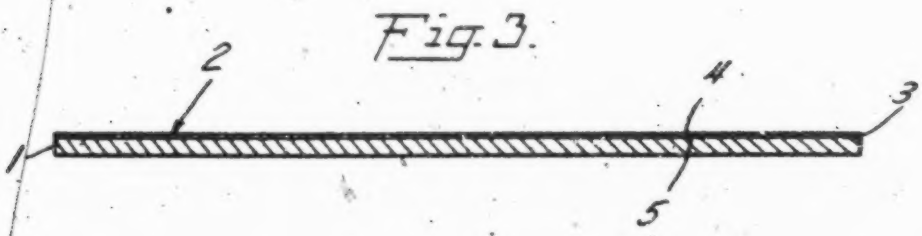
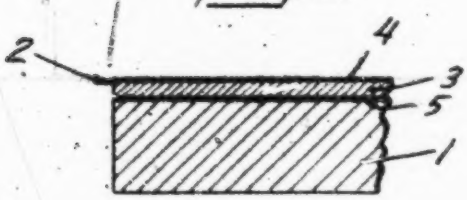


Fig. 4.



INVENTOR

Lorenz G. Lange

BY

Cross Dann Morris & Edmonds

ATTORNEYS

Patented Oct. 28, 1930 1,779,884

UNITED STATES PATENT OFFICE

LOUVERN G. LANGE, OF PASSAIC, NEW JERSEY

COMPOSITE MATERIAL FOR CONTAINERS

Application filed February 3, 1930. Serial No. 425,600.

This invention relates to composite material for use in the manufacture of containers and more particularly to a composite material especially adapted to the purpose of providing a liner for bottle caps and the covers of containers in general.

This application may be considered as a continuation in part of my application, Serial Number 375,882 and Patent No. 1,758,610, both filed July 3, 1929.

In order that my invention may be clearly understood I will explain its application to the problem of providing an improved liner for bottle caps, jar covers and the like, although it will be understood that my invention is not limited to such applications thereof.

It has been common practice in the past to provide metal bottle caps, jar covers and the like with cork inserts which come directly in contact with the top of the bottle, or other receptacle. These cork inserts or discs are clamped in position by any suitable means, such as the crimped edge of the ordinary bottle cap, and the insert is supposed to form a seal for the contents of the container. The use of natural cork for this purpose is not very satisfactory because the natural cork contains imperfections which may render an insert made from this material incapable of forming a complete seal for the container. Composition cork inserts have been employed, such inserts comprising comminuted cork and a suitable binder. Such composition inserts, or liners, are more dense and uniform than such liners made from the natural product but they are still unsatisfactory for many purposes because of the fact that the binder of the composition is attacked by many solvents and this results in disintegration of the material which is supposed to form the seal for the container.

In the production of inserts, or liners, for bottle caps, jar covers and the like it is desirable to use some material such as cork, or composition cork, which is resilient and thus capable of conforming to the configuration of the top of the container. At the same time the materials just mentioned are objectionable for the reasons pointed out above and it is an object of the present invention to provide a composite material suitable for use as liner, or insert material, as well as for other purposes and which is not open to the objections pointed out in connection with the materials discussed above. Natural cork, composition cork and other fibrous resilient materials may be used in accomplishing the objects of my invention but these materials are not used alone, or merely protected by a single coating of material which is supposed to improve their characteristics as has been suggested heretofore.

According to my invention as applied to the making of bottle cap liners and the like I provide some preferably resilient fibrous material, such as cork, composition cork, pulp board, news board, or gray felt and to this material I apply protective layers of a waterproof adhesive and an insoluble varnish. The adhesive and varnish may be carried by a suitable medium, such as cellulose material in sheet form, for example, paper, or the like. I have found that paper is quite satisfactory as a carrying medium and I prefer to employ thoroughly sized paper which has been thoroughly calendered to provide hard surfaces. To one surface of the paper, or other carrying medium, I apply in any suitable manner a film of what I call insoluble varnish. In general it may be stated that by insoluble varnish is meant a varnish which is insoluble, or inert to such solvents as alcohol, acetic acid, citric acid and carbonic acid. Such varnish, although insoluble in and impervious to alcohol and acids of the character described, nevertheless absorbs some moisture and permits some moisture to pass through a film of this varnish. Accordingly, I employ a film of waterproof adhesive and this is employed in such a manner that it is protected from the action of alcohol and other solvents of the character indicated above which would otherwise destroy the adhesive. As indicated above I may apply to one surface of the sheet of paper, or the like, a film of insoluble varnish. To the other surface I apply a film of waterproof adhesive, such as gutta-percha, or similar rubber-like material. This adhesive may be used as a means

for bonding the sheet of paper, or the like, to a base material, preferably resilient in character, such as cork, pulp board or felt. This composite material may be cut into suitable form for application to bottle caps, jar covers and the like, or, if desired, the material may in a sense be assembled within the container cover. For example, the paper may be coated, or otherwise provided with films of varnish and adhesive. The resilient material may be inserted in the container cover and thereafter the varnished and adhesive coated paper may be applied to the fibrous material within the container cover or cap.

I prefer to employ a varnish which comprises a resin which is resistant to alcohol, acetic acid, carbonic acid and the like and an oil which is resistant to these materials. It will be understood that the varnished surface of the paper, or other carrying medium, is exposed to the contents of the bottle, or other container. The films of varnish and adhesive cover the underlying resilient material and together form a complete seal for the container, which is impervious to moisture and inert to the action of such ingredients as may constitute the contents of the container. The adhesive is protected by the varnish and, while the varnish alone is incapable of preventing the escape of moisture, yet this function is performed in a satisfactory manner by the adhesive which remains intact because of the presence of the protective film of varnish.

It will be understood that my invention is particularly suitable for use in the manufacture of containers for beverages, food products and pharmaceutical preparations, many of which contain alcohol, or acids of the character indicated above, which would attack and destroy the ordinary varnish films heretofore proposed as a means for sealing the surface of cork, or other inserts used in container covers.

The various objects and advantages of my invention will be more apparent upon considering the following detailed description which is to be considered in conjunction with the accompanying drawings wherein:

Fig. 1 is a plan view of a strip of composite material embodying my invention;

Fig. 2 is an enlarged plan view of a disc cut from the strip illustrated in Fig. 1;

Fig. 3 is an enlarged elevation of the disc shown in Fig. 2 and

Fig. 4 is a greatly enlarged fragmentary section view of a portion of the disc illustrated in Figs. 2 and 3.

In the accompanying drawings I have illustrated one embodiment of my invention as applied to the production of liners or inserts for bottle caps, jar covers and the like. It will be understood that my invention may be applied to other purposes however.

Referring to Fig. 1 of the accompanying drawing I have shown a strip of composite material embodying my invention, this strip comprising a base layer of material 1 preferably resilient in character and a superimposed composite layer 2 adhering to the base layer. In Fig. 1 the composite material is shown in strip form from which blanks may be cut in any desired shape to fit bottle caps, jar covers and the like, or for other purposes.

Fig. 2 shows in enlarged form a circular disc cut from the strip illustrated in Fig. 1. From this enlarged view it appears that the composite layer 2 supported by the base 1 comprises a carrying medium 3 in the form of a sheet of paper having on its upper surface a film 4 of insoluble varnish and on its lower surface a film of waterproof adhesive 5.

It will be understood that when the improved composite material is used as an insert or liner for bottle caps, jar covers and the like the base material 1 comes in contact with the inside of the cap or cover and the varnished film is exposed to the contents of the container. The film of varnish is highly resistant to and impervious to solvents, such as alcohol, acetic acid, citric acid and carbonic acid, or in other words the varnished film may be said to be insoluble. The adhesive 5, while not necessarily insoluble in alcohol and acids of the character described, is nevertheless impervious to moisture and effectively prevents any moisture which may pass through the film of varnish from entering the underlying base material 1. The layer of paper, or the like, disposed between the films of varnish and adhesive serves, not only as a carrier for these films, but also as a means for strengthening and reinforcing the composite material to prevent accidental injury to the underlying adhesive film. The combination of varnish and adhesive films according to this invention entirely prevents the escape of moisture through the material, which would have a tendency to cause the underlying base material to decompose or mold and this result is accomplished by employing a varnish which is impervious to solvents of the character indicated for protecting a layer or film of adhesive which is effective in preventing the escape of moisture from the container.

The layer of paper, or other cellulose material, illustrated at 3 in the figures of the accompanying drawing is preferably hard surfaced. Where I employ paper I prefer to use paper which has been heavily sized and well calendered to provide glossy surfaces. My reason for preferring this material is that by its use the penetration of the varnish and adhesive into the paper is largely prevented and the varnish and adhesive remain on the surface forming substantially continuous films.

The adhesive material 5 is preferably

gutta-percha, or other rubberlike composition. I prefer to employ a composition comprising gutta-percha, for this material can be softened by heat and by heating the paper carrying the film of adhesive and by heating the underlying material, the layers of material may be effectively united by pressure. Gutta-percha is ordinarily combined with other gums or substances in order to impart to the gutta-percha desirable properties. Balata gums and various other resins are frequently used for this purpose. It will be understood that the term gutta-percha as used herein is intended to describe an adhesive material composed entirely, or only in part, of gutta-percha for various ingredients may be combined with the gutta-percha to improve its characteristics for certain purposes. Gutta-percha in strip form may be applied to the paper 3 in any suitable manner, or the gutta-percha adhesive may be dissolved in a suitable solvent and applied to the paper 3 in liquid form. Where the product is to be used under conditions such that relatively high atmospheric temperatures prevail it is desirable to incorporate with the gutta-percha materials which have a tendency to harden the same and prevent it from melting or softening at elevated atmospheric temperatures. On the other hand where the material is to be used under conditions where low temperatures prevail the gutta-percha composition may be altered accordingly to provide an adhesive which is not unduly brittle at the prevailing low temperatures.

Gutta-percha is especially suitable for accomplishing the objects of my invention for it is waterproof and when combined with a film of varnish as contemplated by my invention a composite material impervious to moisture is formed.

Where the gutta-percha is applied to the paper in liquid form the gutta-percha adhesive may be first dissolved in an appropriate volatile solvent, such as highly refined gasoline, naphtha, toluene, benzene or xylene. The solution may be heated until the mass thickens and it may be applied in the thickened state to the back of paper previously varnished and the remaining volatile solvent permitted to avaporate.

The varnished film 4 covering one surface of the paper, or other cellulose material 3, is preferably the dried residue of a varnish containing a resin which is resistant to alcohol and the acids above indicated and an oil the dried film of which is resistant to these solvents. Various gums or resins are available for this purpose including certain natural gums and at least one synthetic gum. Of the natural gums Zanzibar, Madagascar, and esterized manila gums give the best results. All of these natural gums which are insoluble in alcohol, and black damar, elastica (dry rubber resin) and certain grades of copal, fuse with difficulty in the oils. Esterized manila however fuses more readily than the others. None of these gums however fuse with the oils as readily as the synthetic cumar gum, nor are the finished films as resistant to the action of solvents as is the cumar gum. Cumar gum (manufactured by the Barrett Company) is soluble in the hot oils of the varnish without any preparatory treatment. Cumar gum may be compounded largely with certain of the oils which are resistant to alcohol, such for example as China wood oil, and it has been found that with such a combination it is possible to add small amounts of oil, such as linseed oil, which is soluble in alcohol, and this without destroying the alcohol resisting properties of the varnish. In making the varnish one or more of the usual driers may be added in appropriate amounts to give a coating of the desired consistency and any volatile thinner in which the constituents of the varnish are soluble may be employed. For this purpose a hydrocarbon thinner, such as high test kerosene, is suitable.

Various oils may be used to dissolve the cumar gum. The following example is given as a representative varnish composition which may be regarded as insoluble in alcohol and in acids of the character indicated above:—150 pounds cumar gum, 50 gallons China wood oil, 5 gallons linseed oil, 5 gallons perilla oil, 18 pounds precipitated manganese resinate, 10 pounds cobalt linolate, 5 pounds full bleached paraffin.

This varnish may be thinned down hot with high test kerosene, or any other appropriate volatile solvent. This example is used merely as an illustration of one type of varnish which is suitable for carrying out my invention. Such a varnish successfully withstands the corrosive or solvent action of chemicals such as alcohol, acetice acid and citric acid or the like customarily encountered in beverages, food products, pharmaceutical preparations and cosmetics.

A departure from the formula given above may be made without sacrificing all of the advantages of my invention. The quantity of linseed oil may be further reduced, or the paraffin may be reduced or eliminated where special conditions of use indicate this to be desirable. Any of the ingredients may be used, in different amounts, or eliminated without departing from the spirit of the invention wherever conditions of use require such modification of a combination of ingredients. I prefer to employ a gum or resin which is insoluble in alcohol but soluble in hot oil in the nature of China wood oil.

After the varnish is applied to the paper it is preferably baked to harden the varnish film and increase its resistance to the action of chemicals. It is quite satisfactory to bake the varnished paper at a temperature of ap-

proximately 300° F. for about an hour. The adhesive coating may be applied to the paper after the baking operation has been completed.

It is to be understood that my invention is not limited to the particular embodiments illustrated and described but includes such modifications thereof as fall within the scope of the appended claims.

I claim:

1. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

2. A composite material of the character described comprising a layer of sheet material, an alcohol resistant film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material.

3. A composite material of the character described comprising a layer of sized paper, an insoluble film of varnish adhering to one surface of the paper, a layer of resilient material, and a film of waterproof adhesive bonding said resilient material to the other surface of the paper, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

4. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising a gum insoluble in alcohol and an oil the dried film of which is resistant to alcohol.

5. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising cumar gum and an oil the dried film of which is resistant to alcohol.

6. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising cumar gum and China wood oil.

7. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising cumar gum, China wood oil and linseed oil in the approximate proportions of 150 pounds of cumar gum to 50 gallons of China wood oil and approximately 5 gallons of linseed oil.

8. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive comprising gutta-percha bonding said layer of resilient material to the other surface of said sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

9. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

In testimony whereof I affix my signature.

LOUVERN G. LANGE.

BLANK

PAGE

1422

No. 671,191. Patented Apr. 2, 1901.

E. W. HANAUER.

STAY FOR TROUSERS.

(Application filed Sept. 8, 1900.)

(No Model.)

Fig. 1.

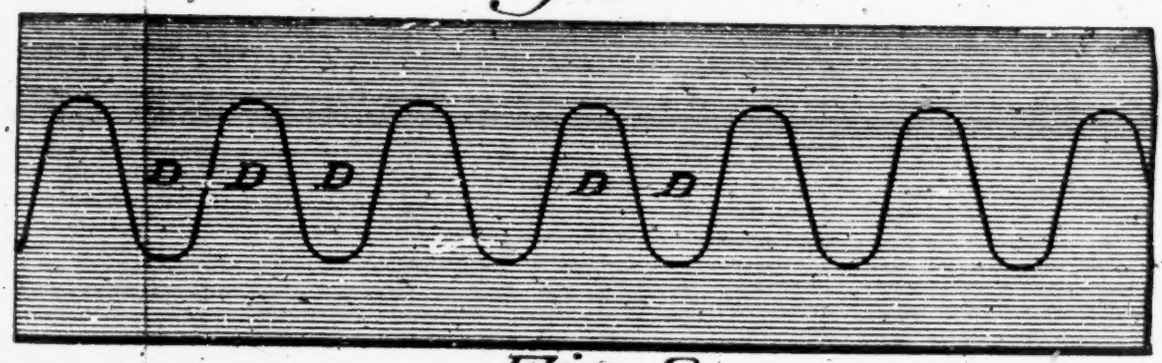


Fig. 2.



Fig. 3.

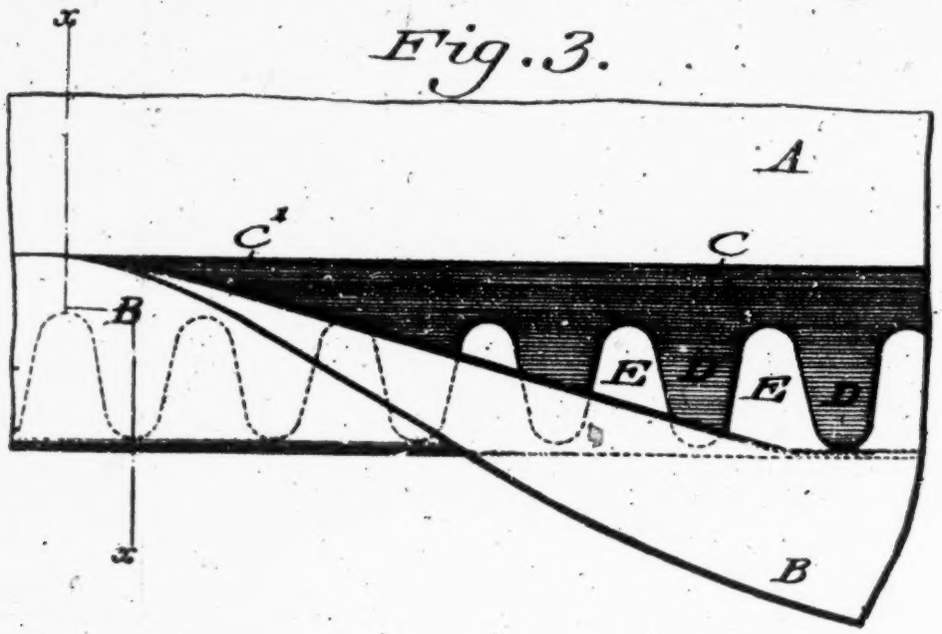


Fig. 4.



Witnesses

P. F. Tagle.

L. Bouville

Inventor

Edward W. Hanauer

By Wiedenstein & Fairbanks.

Attorneys

UNITED STATES PATENT OFFICE.

EDWARD W. HANAUER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO GERSON DANNENBERG, OF SAME PLACE.

STAY FOR TROUSERS.

SPECIFICATION forming part of Letters Patent No. 671,191, dated April 2, 1901.

Application filed September 8, 1900. Serial No. 29,360. (No specimens.)

To all whom it may concern:

Be it known that I, EDWARD W. HANAUER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Stays for Trousers, of which the following is a specification.

My invention consists of an improvement in stays for trousers, as will be hereinafter fully described and claimed.

Figure 1 represents a plan view of a blank from which the stay embodying my invention is formed, illustrating also the manner of cutting the same. Fig. 2 represents a plan of the said bottom stay. Fig. 3 represents a fragmentary view of the bottom portion of the trousers. Fig. 4 represents a sectional view of the same, taken on the line *x x*.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a portion of a leg of a pair of trousers, and B the bottom turn-up thereof.

C designates a stay formed, as usual, of a gummy piece that is inserted between the bottom portion and the turn-up of the trousers and which by adhering thereto holds the turn-up in position, thus obviating sewing the same. This gummy piece may consist of a piece of gutta-percha, rubber, canvas, or other material or fabric and is caused to adhere to the trousers and turn-up usually by the application of a hot iron to the outside thereof after the stay has been inserted therebetween. The upper edge portion of said piece is continuous, as at C', and adapted to extend along the upper edge of the turn-up B and the lower portion of said stay is serrated or broken, forming a series of depending tongues D, which are separated by the intervening spaces E.

It will be seen that when the stay is secured to the turn-up and the adjacent portion of the leg of the trousers said turn-up is strengthened and sustained, as is also the adjacent bottom portion of the leg of the trousers, but owing to the spaces E or breaks in the lengths of the stay the bottom of the trousers is rendered somewhat pliable, avoiding a stiff appearance and caused to hang naturally and softly over the shoes of the wearer, while also preventing rapid wearing out of the lower edge of the leg. There is also economy in the manufacture of the stays in that a serrated or serpentine cut is made in a strip of material and the edges of said cut are common to two stays, as shown in Fig. 1.

By this method of manufacture I am enabled to make a pair of stays from, say, a two-inch strip of material, each member of the pair being an inch and a half wide, there being thus much saving in material and expense.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A garment provided with a bottom stay consisting of a piece of gummy material having a broken lower edge, said stay being situated between the bottom portion of the garment and the turn-up thereof and adhesively secured to the inner faces thereof.

EDWARD W. HANAUER.

Witnesses:
JOHN A. WIEDERSHEIM,
WM. CANER WIEDERSHEIM.

Page Tightly Bound

BLANK

PAGE

1424

1668

DEFENDANT'S EXHIBIT L L L

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the

Letters Patent of

Albin H. Warth, Assignor to
Crown Cork & Seal Company, Inc.,

Number 1,967,195, Granted July 17, 1934,

for

Improvement in Methods of Manufacturing Bottle Caps.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this nineteenth day of September, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-ninth.

ATTEST:

Chief of Division

Commissioner of Patents.

1424

1425

1669

NUMBER (Series of 1932) 664410

DIV. 14

PATENT No. 1967195

1933 DATED JUL 17 1934

(EX'R'S BOOK) 27-79

(15)

Name ALBIN H. WARTH

Assor to Crown Cork & Seal Company, Inc. of Baltimore, Md. a Corp. of New York

of BALTIMORE

State of MARYLAND Md.

Invention METHOD OF MANUFACTURING BOTTLE CAPS AND APPARATUS THEREFOR

Division of App., No. 424221, filed June 7, 1930, in the name of Albin H. Warth, for Method of Manufacturing Bottle Caps, and Apparatus Therefor, which application was filed June 1, 1927, Ser. No. 195,210, and in Canada June 1, 1927.

ORIGINAL

APPLICATION FILED COMPLETE APR 4, 1933

NOTE OF APPLICATION FILED: Petition, Specification, Oath, First Fee $30, 12 sheets Drawings, APR 4, 1933

(10th sheet Drwg June 21 1934)

Examined and passed for Issue June 20, 1934

T. E. Everett Exmr. Div. 14.

Notice of Allowance June 20, 1934

Final Fee $30 June 21, 1934

Attorney CUSHMAN, DARBY & CUSHMAN AMERICAN SECURITY BLDG. CITY

Associate Attorney

55

RENEWED

Renewed and passed for Issue, 19

Exr. Div.

Notice of Allowance, 19

Final Fee, 19

No. of Claims Allowed 3 Print Claim 1 to O.G. Class 113-80

Title as Allowed Method of Manufacturing Bottle Caps

ED

MLT

1426

1670

664410

Insert MAIL DIVISION APR-4 33 U.S. PATENT OFFICE 195

PETITION A 2962

APR-4 33 720371 A-Check — 50.00

TO THE COMMISSIONER OF PATENTS:

Your petitioner Albin H. Warth,

residing at Baltimore,

~~Baltimore County~~ State of Maryland,

whose Post Office address is C/o Crown Cork & Seal Company, Inc., Baltimore, Maryland,

prays that Letters Patent may be granted to him for improvements in METHOD OF MANUFACTURING BOTTLE CAPS AND APPARATUS THEREFOR, as set forth in the annexed specification.

And he hereby appoints Arlon W. Cushman, ~~Arthur Kirkpatrick~~ John J. Darby and William M. Cushman (constituting the firm of Cushman, ~~Kirkpatrick~~ Darby & Cushman, Washington, D. C., Registration No. 7196) and each of them, his Attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Albin H. Warth

(Inventor's Full Name)

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN, that I, Albin H. Warth,

residing at Baltimore,

~~Baltimore County~~ State of Maryland,

have invented certain new and useful improvements in

per B3 METHOD OF MANUFACTURING BOTTLE CAPS ~~AND APPARATUS THEREFOR~~

and I do hereby declare the following to be a full, clear and exact description of the invention, such as will enable others skilled in the art to which it appertains, to make and use the same:

This invention relates to a method of producing closures of the type in which a sealing disk has a facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

This application is a division of my copending application, Serial No. 494,201, filed November 7, 1930, and the latter is a division of my application, Serial No. 159,743, filed January 7, 1927, now Patent No. 1,788,280, granted January 6, 1931.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk, usually made of cork. For some uses, the sealing disks are given a facing, e. g., tin foil, or aluminum foil, these materials or other materials of protective character being suitable to provide a non-absorbent, gas impervious, and acid resistant facing. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as "spot center crowns".

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk

and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the tin foil spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method, the spots are secured by an underlying and separately formed and deposited tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying disks made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shelf itself or a cushion disk of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two

strips one over the other into the disk forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

34

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots may be rapidly and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view, the invention consists in the method which will be first described and then more particularly pointed out in the claim.

According to the method of the present invention, the strip material, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice, the adhesive substance is such that it can be applied cold, i. e., at room temperatures, and is insoluble in cold water. While various materials may be used,

I have found a suitable adhesive in a solution of damar resin and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil, such as soya bean or chinawood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. Another example of a suitable gum type of adhesive is gutta percha or a gutta percha containing compound which have characteristics similar to the composition previously described. Among such characteristics are substantially non-tackiness or adherence at room temperature a high degree of flexibility, insolubility in and imperviousness to moisture or water, acid resistance and heat fusibility, i. e., adapted to be brought to a tacky state by the mere application of heat and without the use of moisture. Such an adhesive is specified in my copending application, Serial No. 414,614, filed December 17, 1929, now Patent No. 1,899,782, granted February 28, 1933.

An adhesive of this character provides a highly flexible adhesive layer continuously united with the facing material. Moreover, such an adhesive is highly resistant to the acids and alkalies ordinarily present in liquids which are to be capped. This is highly important in the manufacture of spot caps, since the liquids attack the adhesive around the edge of the spot. An adhesive of this character, which is not only waterproof, but resistant to acids and alkalies as well, maintains a firm adherent union of the facing or spot material with the cork disk. Due to its flexible character, it will not crack, and, therefore, it constitutes a flexible backing for the spot material.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such

that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the material, it is dried. While this may be effected by air drying at room temperatures, it is more rapidly accomplished at a temperature of about 300°F. maintained for about three minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body, which facilitates feeding and cutting.

Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strip of adhesive

tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stre. is extreme, tearing of the adhesive tissue makes n- sary the stoppage of the cap machine until the strip ca e repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened by heat to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the spot is applied ~~cover is assembled~~. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork. In cutting disks from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disk so as to insure, by the subsequent application of heat and pressure, a bond between the disk and the cap cushion layer coextensive in area with the disk.

This possibility of securing a clean cut by the dies for forming the disks, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disk and the cap which will effectively prevent the seepage of gas or fluid in a bottle

between the disk and the portion of the cap to which it is applied.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting disks therefrom and adhesively uniting the disk to caps at the time of the assembly of the disks with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross-sectional view of the cap shown in Figure 5 showing the use of additional pressure means which may be utilized following the action of the punch as illustrated in Figures 3 and 4.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil, having on one surface the coating 16 of adhesive, which is preferably of the thermoplastic character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e., non-tacky, at room temperature, so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disk will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilise, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disk and adhesively uniting it to the cork insert at the time the ~~strip~~ disk is punched from the ~~disk and assembled with the cap~~ strip.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disk and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marsa, No. 1,603,786, granted October 19, 1926. The caps, with the cushion disks inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disk is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disk upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disk is assembled with the cap, the heat and pressure will cause the disk to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disk thereafter.

The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. The coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use, owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk, it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disk. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

It is preferable after the disk 15 has been bonded to the cork disk 18, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta percha and a close adhesion of every portion of the disk 15 to the disk 18. For this purpose, I have shown (Figure 6) a carrier i and a spring pressed plunger j. In the drawings, I have shown the punch 20 and plunger j as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed.

1439

1683

I CLAIM:

1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

8. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

9. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a cap support adapted to position caps relative to the punch and die mechanism, means to position a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into spot linings and positioned in the cap centrally of and with the adhesive surface abutting the pads by the punch and die mechanism, and a heated plunger to which the caps are delivered from the punch and die mechanism to place the linings under heat and pressure and effect an intimate adhesion between the linings and the pads.

1441

1685

IN TESTIMONY WHEREOF I have hereto my signature.

Albin H. Warth OA
(Inventor's Full Name)

OATH

STATE OF MARYLAND)
CITY OF BALTIMORE) ss.
)

I, Albin H. Warth,
the above-named petitioner, being duly sworn, depose and say that I am a citizen of the United States,
and a resident of Baltimore, Maryland
and that I verily believe myself to be the original, first and sole inventor of the improvements in METHOD OF MANUFACTURING BOTTLE CAPS AND APPARATUS THEREFOR,

described and claimed in the annexed specification; that I do not know and do not believe that the same was ever known or used before my invention or discovery thereof, or patented or described in any printed publication in any country before my invention or discovery thereof, or more than two years prior to this application or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvements has been filed by me or my representatives or assigns in any country foreign to the United States.

Albin H. Warth
(Inventor's Full Name)

Subscribed and sworn to before me this 3rd day of April 1933
(Notarial Seal)

Florence Lee Beckwith
(Signature of Notary Public)

Notary Public
(Official Character)

MY COMMISSION EXPIRES MAY 1, 1933 24/18

1686

2

Letter in re Interference

MAIL DIVISION
APR - 4 33
PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

METHOD OF MANUFACTURING
BOTTLE CAPS & APPARATUS THEREFOR,

Filed April 4, 1933. Div. 14.

* * *

U. S. PATENT OFFICE
APR 10 1933
DIVISION 14

April 4, 1933

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

With reference to the accompanying application, attention is called to the fact that claims 1, 2 and 3 are respectively claims 28, 29 and 30 of the patent to Johnson, No. 1,852,578, granted April 5, 1932.

Claim 4 is substantially claim 19 of the Johnson patent, and it is thought that in view of the similarity, this claim should also be involved in interference with the Johnson patent. This application is a division of applicant's allowed case Serial No. 494,201, filed Nov. 7, 1930 (Div. 50) and the latter application is, in turn, a division of Serial No. 159,745, filed Jan. 7, 1927, now patent No. 1,788,260, granted Jan. 6, 1931.

It is to be noted that the issued patent does not disclose the prebeating of the crown or pad within the crown. Furthermore, it is to be noted that the said patent was cited by the Examiner against a broader claim (38) presented by Johnson and the said claim was canceled. However, claims 28, 29 and 30 were allowed over the disclosure of the Warth patent No. 1,788,260.

Therefore, the said claims have already been held by the Examiner to be patentable over the disclosure of the Farth patent or, in other words, divisible subject matter.

With respect to the step of "heating the pads in the caps", the Examiner's attention is called to the following statement in the specification of this application:

> "This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited." (Page 12, line 8, et seq.,)

With respect to the step of "placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads" (claim 2), attention is called to the following statement in the specification:

> "At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the crown is assembled." (Page 8, line 10 et seq.,)

With respect to the stage of "then placing the linings assembled in the caps under pressure during the cooling thereof", (claim 3) note the following statement in the specification of this application:

> "The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material." (Page 12, line 1-4)

Regarding claim 4, the drawings clearly illustrate the apparatus described and are based upon the original disclosure. The punch and die mechanism is clearly illustrated in the drawings and is, in fact, conventional in the art. It is disclosed in applicant's copending application, Ser. No. 360,895, filed May 5, 1929. Referring to the "heated plunger" to which the caps are delivered from the punch and die mechanism to have heat and pressure applied, this is distinctly described on page 8,

line 14 et seq., as follows:

> "This may be accomplished in any suitable manner as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork".

Such a heated plunger is illustrated, for example, in Fig. 6, and is described on page 13.

The means for feeding the strip is generally known in the art and is described.

It is requested that an interference be declared promptly.

Respectfully,

Lockwood, Dewey, Alexander & Kane

Attorneys.

JJD:D

1445

1689

Div. 14 Room 5097 R/MC Paper No. 3

Address only The Commissioner of Patents, Washington, D. C., and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications relating to this application should give the serial number, date of filing, and name of the applicant

MAILED

APR 14 1933

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

April 14, 1933

Applicant: Albin H. Warth

Cushman, Darby & Cushman
American Security Bldg.
Washington, D. C.

Ser. No. 664,410
Filed Apr. 4, 1933
For Method of Manufacturing Bottle Caps and Apparatus Therefor.

This case has been examined and the following art is cited:

Alberti et al 1,401,300 Dec. 27, 1921 113-80

The statement on page 2, lines 6 to 9, inclusive, in regard to the present application being a division of application, Serial No. 494,201, filed November 7, 1930, which is in turn a division of application, Serial No. 159,743, now Patent No. 1,788,260, should be amended to read a continuation in part rather than "division", it being noted that Fig. 6 in this application and description thereof on page 13 was not in the original application. No showing is made in the said parent case of a heated plunger to which the caps are delivered from a punch and die mechanism as called for in claim 4 of this application.

Claim 4 is also rejected as failing to patentably distinguish from Alberte et al, above cited. This apparatus claim is not allowable over the reference merely on the kind of strip material applied to the cork. Obviously the punch 98 as seen in Figs. 1 and 10 will work just as well if adhesive is applied to the strip rather than in liquid condition to the cork pad. As seen in Figs. 1, 2 and 13, after

the liners have been positioned on the cork pad in the cap, heated plungers 112, 113 and 114 effect intimate adhesion of the liner and cork pad as called for in the claim.

An interference will immediately be declared between claims 1, 2, and 3 of this application and claims 28, 29, and 30, respectively, of Johnson Patent No. 1,852,578.

L.A.F.

N. J. Brumbaugh

Examiner.

1447

1691

Div. 14 Room 8097 216 R/180 Paper No. 4

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications regarding this application should give the serial number, date of filing, and name of the applicant.

(Copy sent to Assignee)

Please find below a communication from the EXAMINER in charge of this application

APR 18 1933

Thomas E. Robertson
Commissioner of Patents

Applicant: Albin H. Warth

Cushman, Darby & Cushman
American Security Bldg.
Washington, D. C.

Ser. No. 664,410
Filed Apr. 4, 1933
For Method of Manufacturing Bottle Caps and Apparatus Therefor.

APR 20 1933

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 66201 On or before MAY 15 1933

the statement demanded by rule 110 must be sealed up and filed with the subject of invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count 1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

Count 2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

Count 3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

Serial No. 664,410 - - 2

The interference involves your application above identified and a patent, No. 1,852,578, granted April 5, 1932, for Method and Apparatus for Assembling Linings in Receptacle Closure Caps, Serial No. 409,793, filed November 28, 1929, by John A. Johnson, whose post office address is 84-16-86th Street, Woodhaven, N. Y., and whose attorney is John O. Seifert, 277 Broadway, New York, N.Y.

The relation of the counts of the interference to the claims of the respective parties is as follows:

COUNTS	MARTH	JOHNSON
1	1	28
2	2	29
3	3	30

Counts Compared.

JEK

N. J. Brumbaugh

Examiner, Division 14.

1449

1693

APR 18 1933

INTERFERENCE

Interference No. 66201 *Paper No.* 5

Name, Albin H. Barth

Serial No. 664,410

Title, Method of Manufacturing Bottle Caps and Apparatus Therefor.

Filed, April 4, 1933

Interference with John A. Johnson

DECISIONS ON MOTION

Ex'r of Interferences, _____ *Dated,* _____

Board of Appeals, _____ *Dated,* _____

DECISIONS ON PRIORITY

Ex'r of Interferences, Favorable *Dated,* Apr. 14/34

Board of Appeals, _____ *Dated,* _____

Court, _____ *Dated,* _____

REMARKS:

664410 - ml

This sheet to be placed in each application or patent involved in interference in addition to the interference issued by Primary Examiner.

1450

1694

Div. 14 Room 5097 Ross/MC Paper No. 6

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications regarding this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents.

May 15, 1934

Applicant: Albin H. Warth

Ser. No. 664,410
Filed Apr. 4, 1933
For Method of Manufacturing Bottle Caps and Apparatus Therefor.

Cushman, Darby & Cushman
American Security Bldg.
Washington, D. C.

MAILED
MAY 15 1934

Interference No. 66,201 in which this application was involved having terminated favorably to this applicant, claims 1, 2, and 3, which constituted counts of the above identified interference, are allowed.

The step of heating the pads in the caps called for in claims 1, 2 and 3 should be suitably illustrated in the drawings.

Attention is directed to the action of April 14, 1933 in regard to the specification and in regard to the rejection of claim 4 for the reasons stated therein. The rejection of this claim is repeated for the reasons stated in the action.

Examiner.

1451

1695

A 2964 + add sheet Drwg

APPLICATION DIV. JUN 21 34 PAT. OFF.

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

METHOD OF MANUFACTURING BOTTLE CAPS & APPARATUS THEREFOR,

Filed April 4, 1933,

Serial No. 664,410. Div. 14.

* * *

June 19, 1934

U. S. PATENT OFFICE JUN 21 1934 DIVISION 14

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE DRAWINGS

Please enter the accompanying sheet.

IN THE SPECIFICATION

Page 2

Line 11, after "disk" insert --or pad--.

Line 12, after "disks" insert --or pads--.

Line 17, change "spot center" to --center spot--.

Line 18, before the paragraph beginning "These spot center crowns etc." insert the following paragraph:

A commercially practicable method for manufacturing center spot crowns must ensure a high speed of production and accurate positioning of the center spot. An object of the present invention is to provide a method which will permit produc-

tion at the rate of from 400 to 600 per minute, i. e., application of the center spots to the sealing pads at such a rate. A further object is to ensure accurate positioning or centering of the facing or spot while maintaining this high speed.

Line 18, change "spot center" to --center spot--.

Page 6

Line 30, after "fluid" insert --or plastic--.

Same line (30) cancel "and cold".

Page 8

Line 10, after "softened" insert --by heat--.

Line 14, cancel "crown is assembled" and substitute --spot is applied--.

Line 15, cancel "as" and substitute --for example--.

Line 16, before the period insert --such as illustrated in Figure 6 of the accompanying drawing--.

Page 9

In the brief description of Figure 5 cancel "and".

Same page add the following:

Figure 7 illustrates a suitable means for applying heat to the sealing pads or disks for preheating the assembled crowns which are fed to the punch whereby to effect adhesion of the center spot as soon as it is deposited, and

Figure 8 is a view illustrating another mechanism suitable for preheating.

Page 10

Line 17, at the end of the line insert --thermoplastic--.

Next to the last line cancel "strip" and substitute --disk--.

Same line cancel "disk and assembled with the cap" and substitute --strip.--

Page 11

Line 7, after "disks" insert --or pads--.

Line 24, after the period insert --As hereinafter described, the method contemplates a preheating of the assembled crown, i.e., the metal shell with a sealing pad therein, before the spot is deposited so that the spot will adhere to the pad as soon as it is deposited.--

Line 25, after "may" insert --, if desired,--.

After the last line insert the following paragraph:

--As hereinbefore stated, after the spot is positioned on the sealing pad heat and pressure may be applied, as by a plunger or a plunger and heated table. In Figure 6 there is shown for this purpose a carrier 1 and a spring-pressed plunger 1. The plunger 1 is heated by gas jets, and thus the plunger serves as means for applying a continuing heat and pressure after the punching operation to ensure complete fusion of the adhesive and a close adhesion of every portion of the disk 15 to the disk 18.--

Page 12

Line 2, after "plunger" and before the period insert --such as illustrated in Figure 6, but which would not, of course, be heated--.

Lines 1 to 4, transpose this paragraph so that it follows the paragraph ending with present line 15.

Line 9, after "crown" insert --i. e., metal shell with the sealing pad or disk therein--.

Line 9, cancel the comma (second occurrence).

Line 10, cancel "in either case" and capitalize "the" (second occurrence).

Line 11, before "becomes" insert --thus--.

Same line (11) after "enough" insert --, as soon as deposited on the sealing pad,--.

-2-

Line 13, after the period insert the following:

In Figure 7, there is illustrated a suitable means for preheating the sealing pads to ensure adherence of the spot as soon as deposited. A burner 24 is positioned over the conveyor 21 and spaced sufficiently therefrom to apply to the pads heat sufficient to cause the spots to adhere to the latter as soon as deposited. This burner may be disposed within a hood 25 which confines the heat and tends to direct the same against the pads. As will be understood, it is sufficiently elongated to create sufficient heat for the purpose desired. This heater may be positioned immediately in advance of the punch 20 so that heat is not appreciably dissipated or lost before the punching operation. In Figure 8 there is illustrated another mechanism which may be used for preheating. A plunger 26 maintained at an elevated temperature, as by a gas burner 27, when positioned immediately in advance of the punch may be utilized to raise the temperature of the pads sufficiently to cause the spot to adhere to the pads as soon as deposited thereon.

Page 13

Cancel the paragraph appearing on this page.

IN THE CLAIMS

Cancel claim 4.

REMARKS

This application has been carefully reviewed in the light of the Official action of May 15th.

The Examiner's attention is called to the fact that the earlier applications referred to on page 2 of the specification contain a clear basis for the disclosure in Figure 6 and the description appearing on page 13. Hence, this application is a division of the earlier applications. If the Examiner will refer to page 8 of the present specification, he will find the following statement:

> "In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table."

This exact language appeared in the earlier cases referred to. In Serial No. 494,201, filed Nov. 7, 1930, note page 4, lines 24 to 28. In Serial No. 159,743, filed Jan. 7, 1927 (now patent 1,788,280) note page 8, lines 5 to 9. In each earlier application, the disclosure appears in exactly the same language. It is submitted that this disclosure is a clear basis for the illustration in Figure 6, and therefore we submit that the present application is properly designated as a division of the earlier cases.

The new drawing required is submitted herewith, and we think that the same fully meets the requirement for illustration of the preheating step.

The case is thought to be in condition for allowance, which is solicited.

Respectfully,

Attorneys.

JJD:U

1456

1700

APPLICATION DIV. JAN 21 34 PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

U. S. PATENT OFFICE JUN 21 1934 DIVISION 14

Albin H. Warth,

METHOD OF MANUFACTURING BOTTLE CAPS,

Filed April 4, 1933,

Serial No. 664,410. Div. 14.

* *

DISTRICT OF COLUMBIA:SS.

Albin H. Warth, whose application for Letters Patent for Improvements in Method of Manufacturing Bottle Caps, was filed April 4, 1933, Serial No. 664,410, as a division of his application Serial No. 494,201, filed Nov. 7, 1930, being duly sworn, deposes and says that he has read the attached amendment and that the subject matter thereof was part of his invention, was invented before he filed his original application for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his original application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his original application, or in public use or on sale in this country for more than two years before the date of his original application, and that the same has not been abandoned.

Albin H. Warth

Subscribed and sworn to before me this 19th day of June, 1934.

Theresa Buckhantz
Notary Public. D.C.

1457

1701

8

TITLE REPORT

064,410

one a. Albin H. Warth

The title appears from the assignment records to be vested in.

Crown Cork & Seal Company, Inc.,
Baltimore, Md.,
a corp. of New York.

Examined up to and including 6/12/34

This certificate dated 6/21/34

B.N. Gray
Chief Assignment Division.

h

No further assignments appear to have been received for record including
6/19/34

6/21/34

1458

1702

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

181

Serial No. 664,410

Div. 14
MC

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

June 23, 1934

Albin H. Warth, Assor. etc.

Your APPLICATION for a patent for an IMPROVEMENT in

METHOD OF MANUFACTURING BOTTLE CAPS

filed Apr.4,1933 has been examined and ALLOWED with 3 claims.

The final fee, THIRTY DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $30 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $30 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Commissioner of Patents.

Cushman, Darby & Cushman
American Security Bldg.
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

1459

1703

JUN 21 34 233012 B ~Check — 30.00

MAIL DIVISION JUN 21 34 U.S. PATENT OFFICE

U. S. Patent Office.

FINAL FEE PAID TO THE COMMISSIONER OF PATENTS

(Be careful to give correct Serial No.)

Serial No. 664,410

INVENTOR:

Albin H. Warth

PATENT TO BE ISSUED TO

As per record

NAME OF INVENTION, AS ALLOWED:

Method of manufacturing bottle caps and apparatus therefor

DATE OF PAYMENT:

June 21, 1934

FEE:

Final 3 cls

1
2
3

DATE OF FILING:

April 4, 1933

DATE OF CIRCULAR OF ALLOWANCE:

June 21, 1934 - Patent to issue July 17, 1934

1

The Commissioner of Patents will please apply the accompanying fee as indicated above.

Cushman, Darby & Cushman

Attorney.

SEND PATENT TO

Attorneys

APPROVED

JUN 23 1934

Assistant Commissioner of Patents.

Final fees will not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office, NOR WILL THEY BE APPLIED IN PENDING APPLICATIONS.

1460

1704

R.

354 Ross/MC

Div. 14 Room 5097 DEPARTMENT OF COMMERCE Paper No. 9

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

UNITED STATES PATENT OFFICE
WASHINGTON

All communications respecting this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application

Commissioner of Patents.

June 21, 1934

Applicant Albin H. Barth

Ser. No. 684,410
Filed - Apr. 4, 1933
For Method of Manufacturing Bottle Caps

Cushman, Darby & Cushman
American Security Bldg.
Washington, D. C.

MAILED
JUN 21 1934

In accordance with the provisions of Order No. 2308, dated March 12, 1917, which reads in part as follows:

* * * * * * * *

> Obvious informalities in the application may be corrected by the examiner, but said correction must be in the form of an amendment, approved by the Principal Examiner in writing, placed in the file, and made a part of the record. The changes specified in the amendment will be entered by the clerk in the regular way.

* * * * * * * *

the changes, hereinafter specified, are made by the examiner in the application above identified.

Should these changes not be satisfactory to the applicant, appropriate amendment may be proposed under the provisions of Rule 78, provided the specification has not been printed. ero 11-28

The application has been amended as follows:

The title of the application has been changed to Method of Manufacturing Bottle Caps, to agree with the claims in the case.

R

E. A. Smith

Acting Examiner.

1461

1705

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

June 25, 1937

Petition under **RULE 78:**

MAILED

Application of

JUN 25 1937

Serial No.

Invention:

9

This petition is referred to Examiner in charge of Division 14 in accordance with Order No. 2698; Order No. 2801, 308 O. G., 447, and Notice of August 11, 1922.

Commissioner.

Fee

1462 ao 1706

A 2968 6 (R 78)

U. S PATENT OFFICE

JUN 22 1934

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

METHOD OF MANUFACTURING BOTTLE CAPS,

Filed April 4, 1933,

Serial No. 664,410.

U. S. PATENT OFFICE
JUN 25
DIVISION 14

Div. 14.

* * *

June 22, 1934.

Hon. Commissioner of Patents,

Washington, D. C.

Sir:-

We hereby authorize and request entry of the following amendment under the provisions of Rule 78:-

IN THE SPECIFICATION:-

Page 5.

Line 20, cancel "are easily" and substitute --may be rapidly--.

Line 22, after the paragraph, insert the following:-

--Another object of the invention is to provide a method in which the sealing discs or "spots" when punched from the strip and delivered to the cushion pad will be stuck in position instantly or as soon as deposited whereby during subsequent operations they will not move from the accurately centered position in which they are placed by the punch and die mechanism. This is preferably accomplished by preheating the sealing pad or cushion sufficiently to cause the thermoplastic coating on the disc to fuse sufficiently when it engages the pad to adhere instantly to the sealing pad.--

Line 25, change "claim" to --claims--.

1463

1707

Page 6.

Line 17, after the period insert --I also prefer to preheat the cushion disc or pad in the metal shell so that, as soon as the spot is applied, the thermoplastic adhesive thereon will be fused or softened and thereby cause the spot to be fixed in the accurately centered position in which it is deposited and held against dislodgement during the subsequent steps and passage through the apparatus.--

REMARKS

The foregoing amendments are purely formal in character and simply elaborate somewhat the description already embodied in the specification.

Respectfully,

Cushman, Darby & Cushman
Attorneys for Applicant.

JJD:K

ENTRY RECOMMENDED.
UNDER RULE 78

B. A. Smith
acting EXAMINER

ACTING COMMISSIONER OF PATENTS

-2-

1464

1708

Div. 14 Room 5097

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 11

All communications regarding this application should give the serial number, date of filing, and name of the applicant

June 25, 1934

Applicant: Albin H. Warth

Ser. No. 664,410
Filed Apr. 4, 1933
For Method of Manufacturing Bottle Caps.

Cushman, Darby & Cushman
American Security Bldg.
Washington, D. C.

The amendment proposed has been entered under Rule 78.

Commissioner of Patents.

MAILED

JUN 25 1934

1465

1709

July 17, 1934. A. H. WARTH 1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Original Filed Nov. 7, 1930 2 Sheets-Sheet 1

Fig. 1.

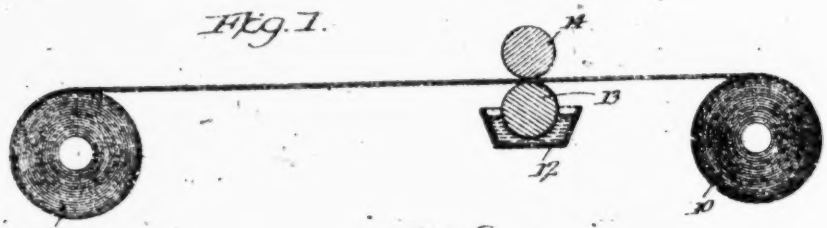


Fig. 2.

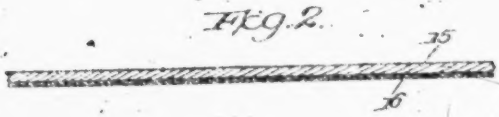


Fig. 3.

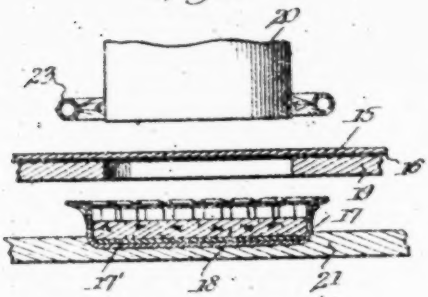


Fig. 4.

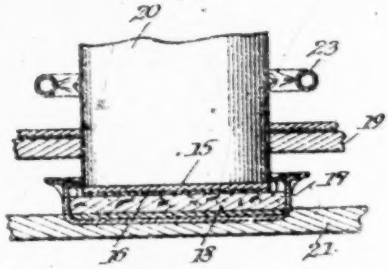


Fig. 5.

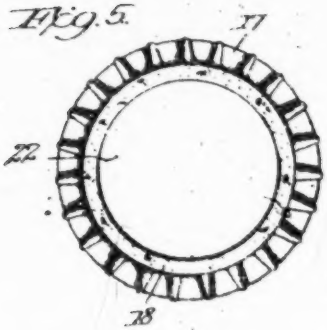
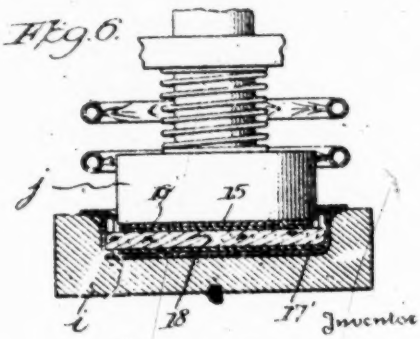


Fig. 6.



Inventor

Albin H. Warth.

By Cushman Darby & Cushman

Attorneys

BLANK

PAGE

1466

July 17, 1934. A. H. WARTH 1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Original Filed Nov. 7, 1930 2 Sheets-Sheet 2

Fig. 7.

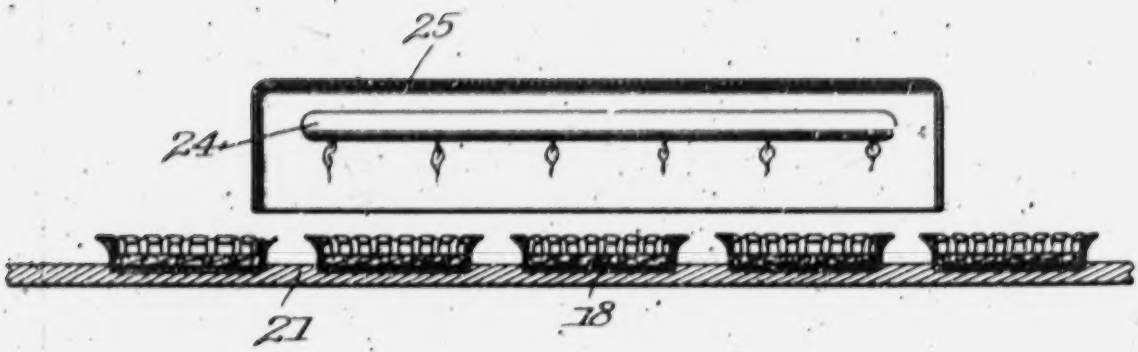
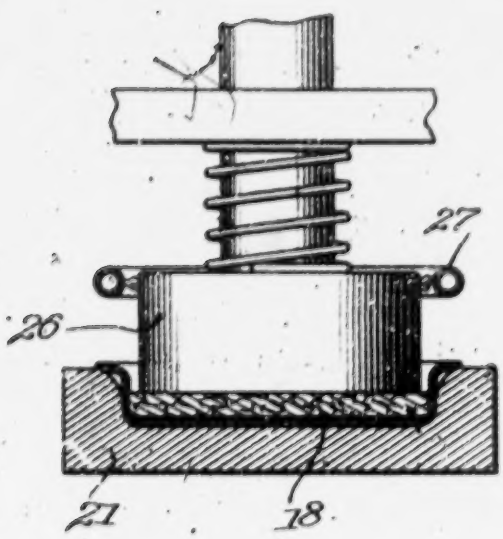


Fig. 8.



Inventor:

Albin H. Warth.

By Cushman Darby & Cushman

Attorneys

Patented July 17, 1934

1,967,195

UNITED STATES PATENT OFFICE

1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Albin H. Warth, Baltimore, Md., assignor to Crown Cork & Seal Company, Inc., Baltimore, Md., a corporation of New York

Original application November 7, 1930, Serial No. 494,201, which in turn is a division of Serial No. 159,743, January 7, 1927, now Patent No. 1,788,260, dated January 6, 1931. Divided and this application April 4, 1933, Serial No. 664,410

3 Claims. (Cl. 113—30)

This invention relates to a method of producing closures of the type in which a sealing disk has a facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

This application is a division of my copending application, Serial No. 494,201, filed November 7, 1930, and the latter is a division of my application, Serial No. 159,743, filed January 7, 1927, now Patent No. 1,788,260, granted January 6, 1931.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk or pad usually made of cork. For some uses, the sealing disks or pads are given a facing, e. g., tin foil, or aluminum foil, these materials or other materials of protective character being suitable to provide a non-absorbent, gas impervious, and acid resistant facing. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as "center spot crowns".

A commercially practicable method for manufacturing center spot crowns must ensure a high speed of production and accurate positioning of the center spot. An object of the present invention is to provide a method which will permit production at the rate of from 400 to 600 per minute, i. e., application of the center spots to the sealing pads at such a rate. A further object is to ensure accurate positioning or centering of the facing or spot while maintaining this high speed.

These center spot crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the tin foil spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method, the spots are secured by an underlying and separately formed and deposited tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying disks made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a water-proof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shelf itself or a cushion disk of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disk forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint above the edge of the facing disk. When cutting and applying the disk of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for

assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots may be rapidly and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

Another object of the invention is to provide a method in which the sealing discs or "spots" when punched from the strip and delivered to the cushion pad will be stuck in position instantly or as soon as deposited whereby during subsequent operations they will not move from the accurately centered position in which they are placed by the punch and die mechanism. This is preferably accomplished by preheating the sealing pad or cushion sufficiently to cause the thermoplastic coating on the disc to fuse sufficiently when it engages the pad to adhere instantly to the sealing pad.

With these general objects in view, the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice, the adhesive substance is such that it can be applied cold, i. e., at room temperatures, and is insoluble in cold water. While various materials may be used, I have found a suitable adhesive in a solution of dammar resin and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil, such as soya bean or China-wood oil. The dammar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. Another example of a suitable gum type of adhesive is gutta percha or a gutta percha containing compound which have characteristics similar to the composition previously described. Among such characteristics are substantially non-tackiness or adherence at room temperature a high degree of flexibility, insolubility in and imperviousness to moisture or water, acid resistance and heat fusibility, i. e., adapted to be brought to a tacky state by the mere application of heat and without the use of moisture. Such an adhesive is specified in my copending application, Serial No. 414,614, filed December 17, 1929, now Patent No. 1,899,782, granted February 28, 1933.

An adhesive of this character provides a highly flexible adhesive layer continuously united with the facing material. Moreover, such an adhesive is highly resistant to the acids and alkalies ordinarily present in liquids which are to be capped. This is highly important in the manufacture of spot caps, since the liquids attack the adhesive around the edge of the spot. An adhesive of this character, which is not only waterproof, but resistant to acids and alkalies as well, maintains a firm adherent union of the facing or spot material with the cork disk. Due to its flexible character, it will not crack, and, therefore, it constitutes a flexible backing for the spot material.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid or plastic form to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the material, it is dried. While this may be effected by air drying at room temperatures, it is more rapidly accomplished at a temperature of about 300° F. maintained for about three minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body, which facilitates feeding and cutting.

Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strip of adhesive tissue and facing material where any stretch or distortion of the ad-

BLANK

PAGE

BLANK

PAGE

hesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened by heat to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the spot is applied. This may be accomplished in any suitable manner, for example by a heated plunger or a plunger and heated table such as illustrated in Figure 6 of the accompanying drawings. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork. I also prefer to preheat the cushion disc or pad in the metal cell so that, as soon as the spot is applied, the thermoplastic adhesive thereon will be fused or softened and thereby cause the spot to be fixed in the accurately centered position in which it is deposited and held against dislodgment during the subsequent steps and passage through the apparatus. In cutting disks from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disk so as to insure, by the subsequent application of heat and pressure, a bond between the disk and the cap cushion layer coextensive in area with the disk.

This possibility of securing a clean cut by the dies for forming the disks, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby preventing a continuous barrier of non-absorptive and gas impervious material at the space between the disk and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disk and the portion of the cap to which it is applied.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting disks therefrom and adhesively uniting the disk to caps at the time of the assembly of the disks with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap.

Figure 6 is a cross-sectional view of the cap shown in Figure 5 showing the use of additional pressure means which may be utilized following the action of the punch as illustrated in Figures 3 and 4.

Figure 7 illustrates a suitable means for applying heat to the sealing pads or disks for preheating the assembled crowns which are fed to the punch whereby to effect adhesion of the center spot as soon as it is deposited, and

Figure 8 is a view illustrating another mechanism suitable for preheating.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material such as aluminum foil, having on one surface the coating 16 of adhesive, which is preferably of the thermoplastic character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e., non-tacky, at room temperature, so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disk will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disk and adhesively uniting it to the cork insert at the time the disk is punched from the strip.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disk and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marsa, No. 1,603,786, granted October 19, 1926. The caps, with the cushion disks or pads inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disk is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disk upon the cushion layer 18. As hereinafter described, the method contemplates a preheating of the assem-

Page Tightly Bound

1469

bled crown, i. e., the metal shell with a sealing pad therein, before the spot is deposited so that the spot will adhere to the pad as soon as it is deposited.

The punch 20 may, if desired, be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disk is assembled with the cap, the heat and pressure will cause the disk to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disk thereafter.

As hereinbefore stated, after the spot is positioned on the sealing pad heat and pressure may be applied, as by a plunger or a plunger and heated table. In Figure 6 there is shown for this purpose a carrier *i* and a spring-pressed plunger *j*. The plunger *j* is heated by gas jets, and thus the plunger serves as means for applying a continuing heat and pressure after the punching operation to ensure complete fusion of the adhesive and a close adhesion of every portion of the disk 15 to the disk 18.

It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown i. e., metal shell with the sealing pad or disk therein, to soften the coating as soon as the metal foil spot is deposited. The coating thus becomes tacky enough, as soon as deposited on the sealing pad, to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus. In Figure 7, there is illustrated a suitable means for preheating the sealing pads to ensure adherence of the spot as soon as deposited. A burner 24 is positioned over the conveyor 21 and spaced sufficiently therefrom to apply to the pads heat sufficient to cause the spots to adhere to the latter as soon as deposited. This burner may be disposed within a hood 25 which confines the heat and tends to direct the same against the pads. As will be understood, it is sufficiently elongated to create sufficient heat for the purpose desired. This heater may be positioned immediately in advance of the punch 20 so that heat is not appreciably dissipated or lost before the punching operation. In Figure 8 there is illustrated another mechanism which may be used for preheating. A plunger 26 maintained at an elevated temperature, as by a gas burner 27, when positioned immediately in advance of the punch may be utilized to raise the temperature of the pads sufficiently to cause the spot to adhere to the pads as soon as deposited thereon.

The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger such as illustrated in Figure 6, but which would not, of course, be heated. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use, owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk, it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disk. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

I claim:

1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

ALBIN H. WARTH.

1715

1852578 173

4433 1788760

1933

CONTENTS:

1. Application	papers.	26.	
2. Interf. Int. Apr. 4. 1933		27.	
3. Rej Apr. 14, 1933		28.	
4. Interf. Letter APR 20 1933		29.	
5. Interf. Blank		30.	
6. Letter May 15, 1934		31.	
7. Appeal Int. June 4. 1934		32.	
8. Sida Appeal Brief June 21. 1934		33.	
9. Reply Brief B June 21. 1934		34.	
10. Grande C (Sida #8) June 22. 1934		35.	
11. Notice of Hearing June 25 1934		36.	
12.		37.	
13.		38.	

4603

1472

A. BOGDÁNFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 1.

Fig. 1.

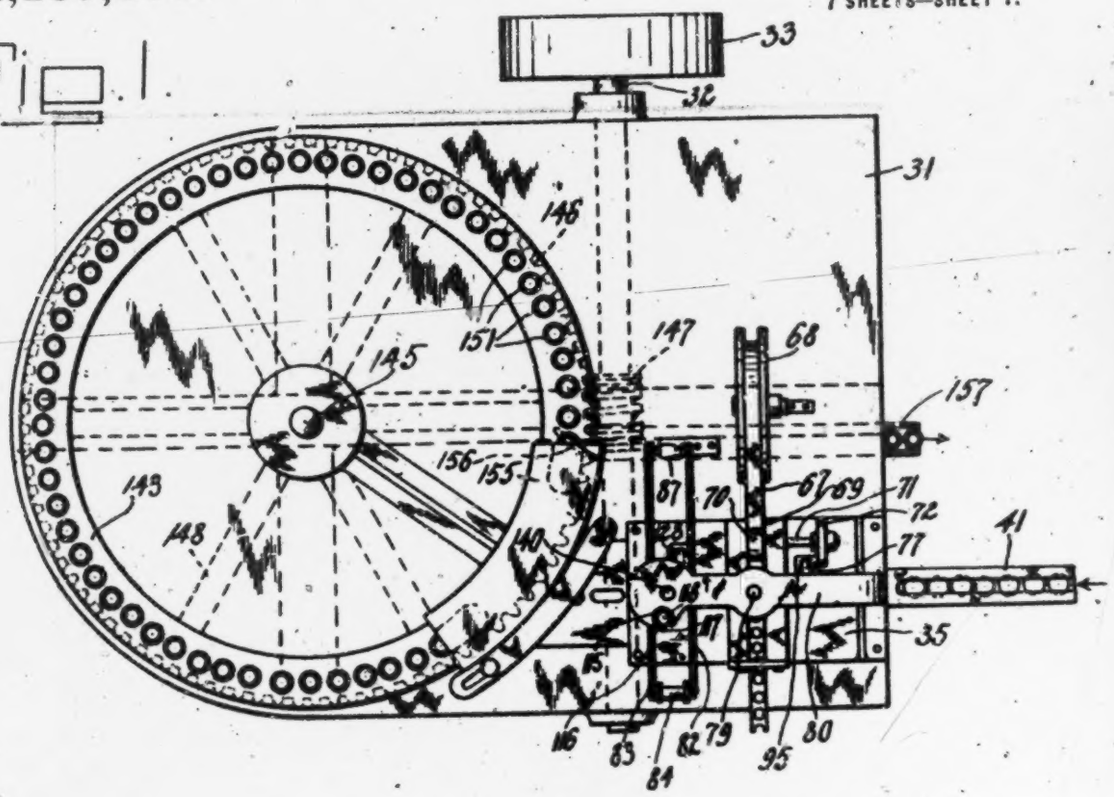
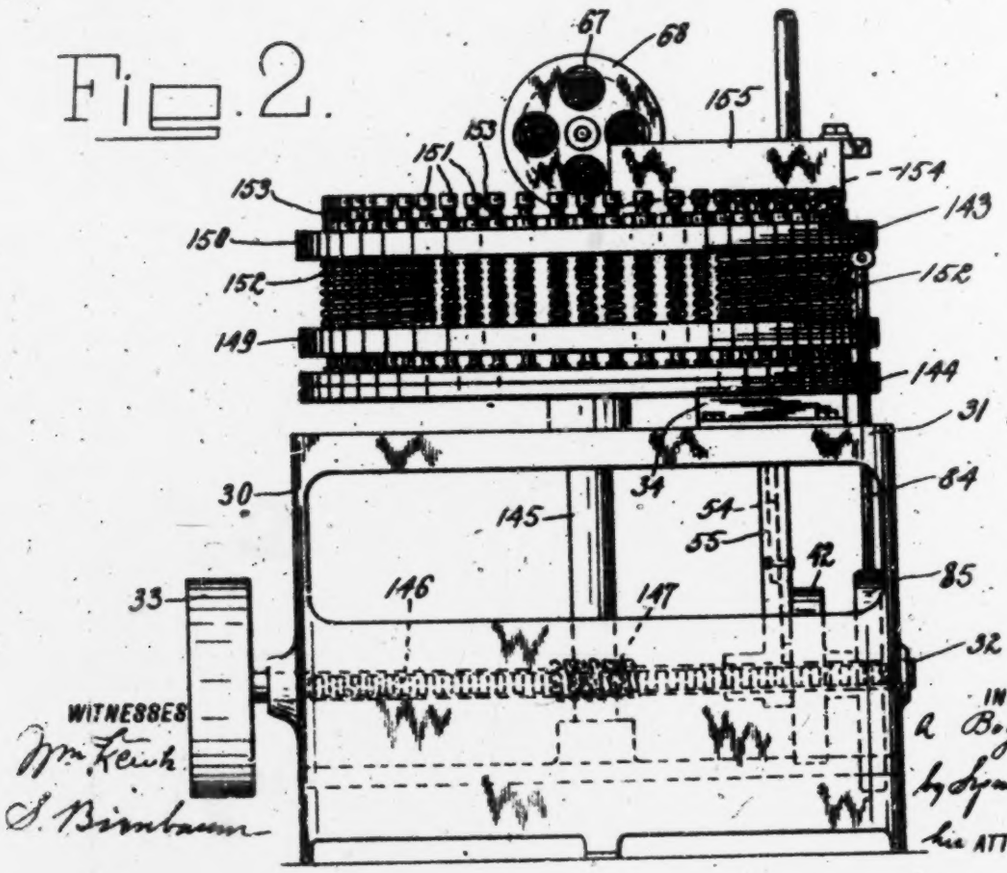


Fig. 2.



WITNESSES

Wm. Keuk

S. Birnbaum

INVENTOR

A. Bogdánffy

by Lyman Hayes

his ATTORNEY

BLANK

PAGE

1473

A. BOGDÁNFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 2.

Fig. 3.

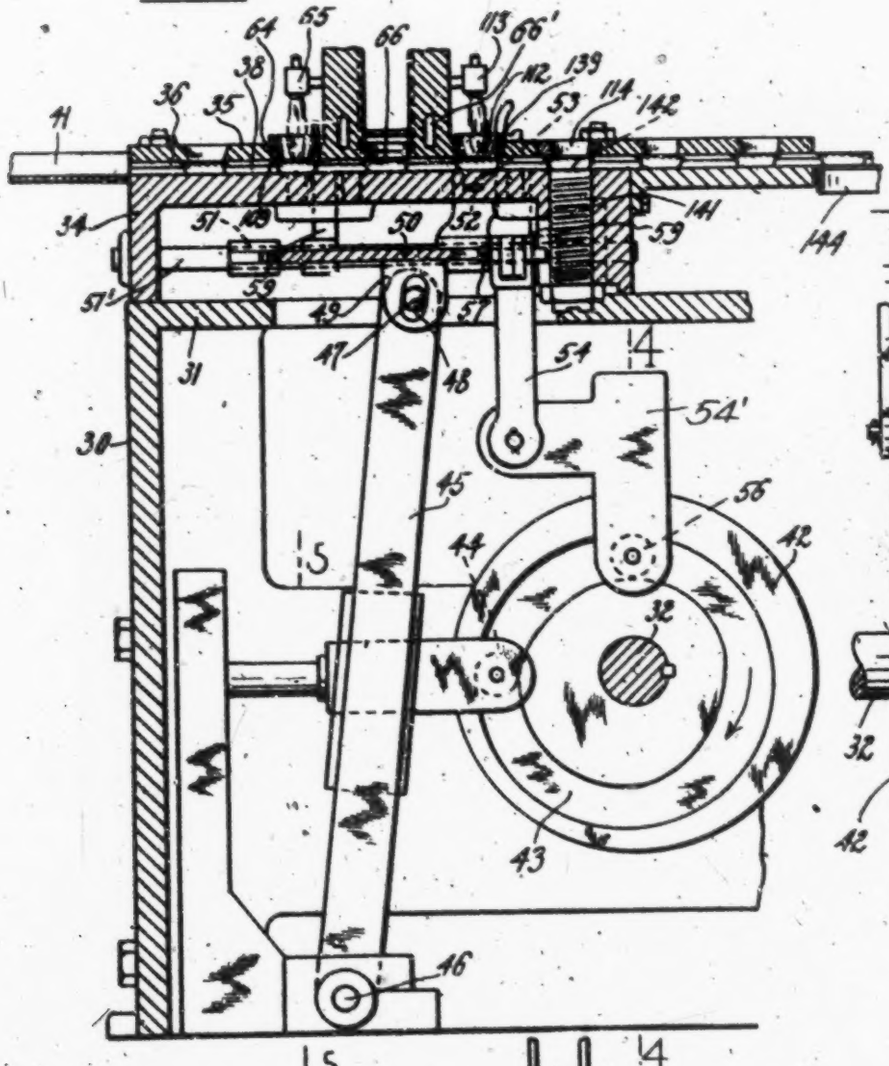


Fig. 4.

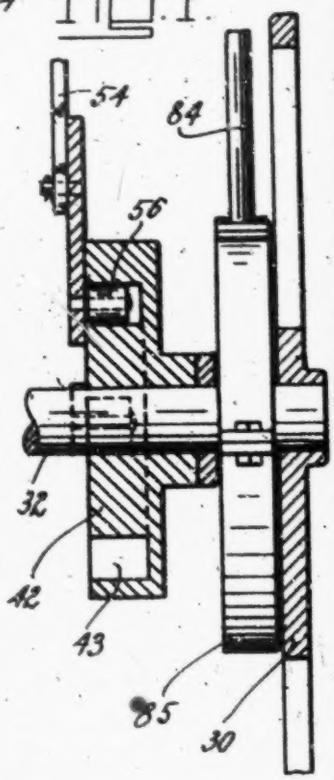
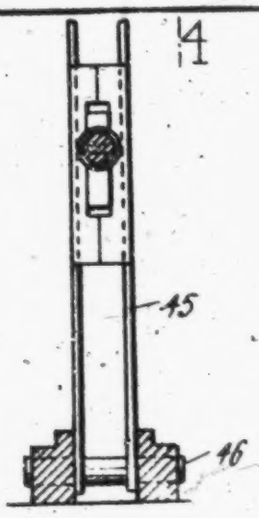


Fig. 5.



WITNESSES—
Wm. Klein
S. Birnbaum

INVENTOR
A. Bogdánffy
BY
Sigmund Herzog
his ATTORNEY

BLANK

PAGE

1474

A. BOGDÁNFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

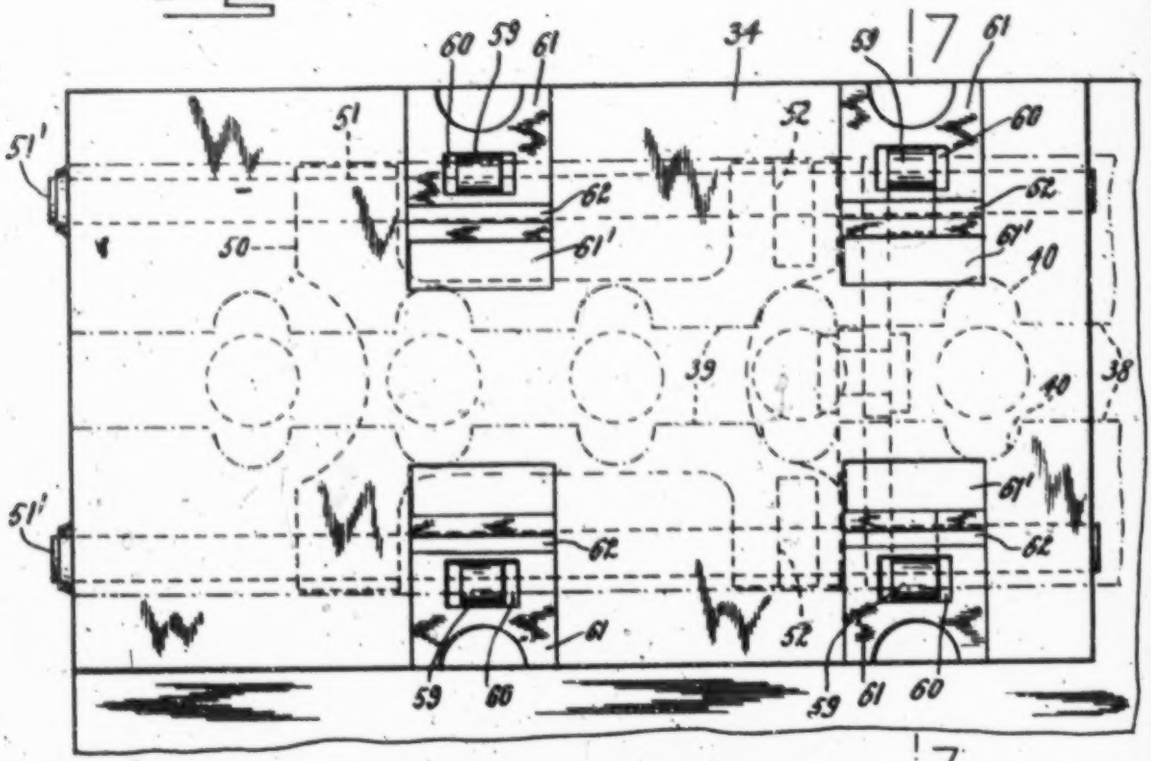
APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 3.

Fig. 6



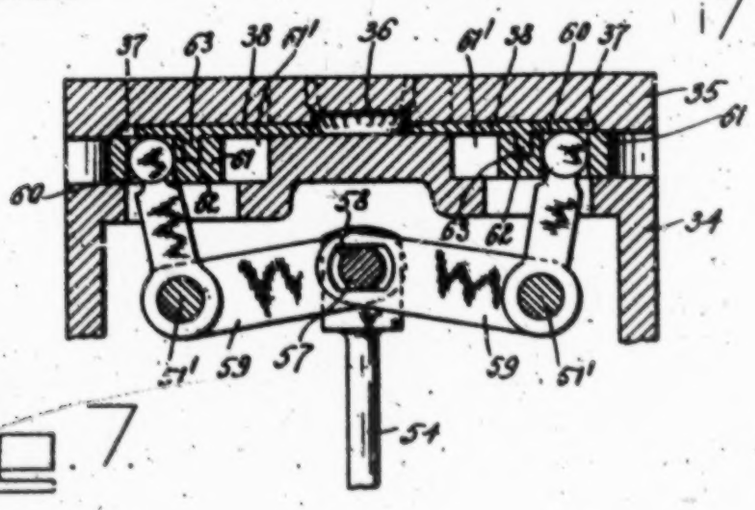


Fig. 7.

WITNESSES

Wm. Klauk

S. Birnbaum

INVENTOR

A. Bogdánffy

BY

Sigmund Herzog

his ATTORNEY

BLANK

PAGE

1475

A. BOGDÁNFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 4.

Fig. 9

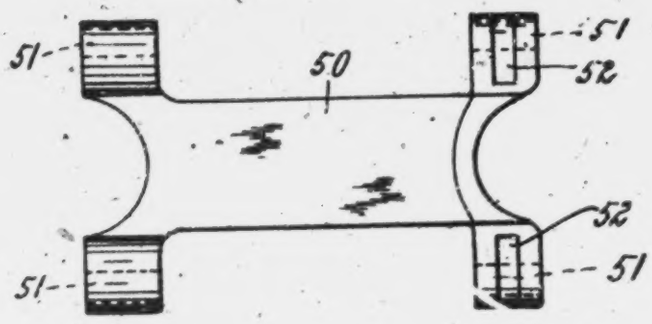


Fig. 8

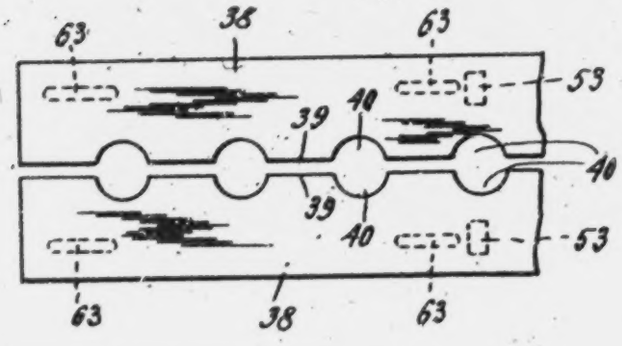


Fig. 25

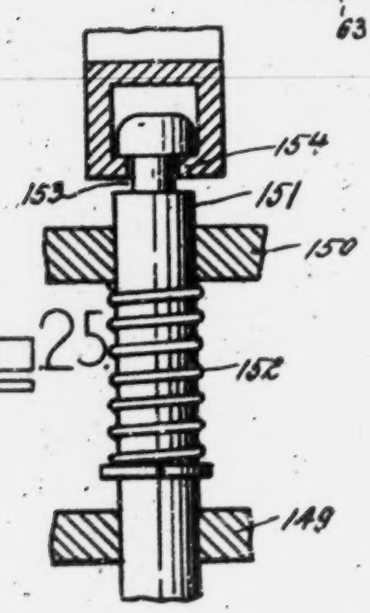


Fig. 27

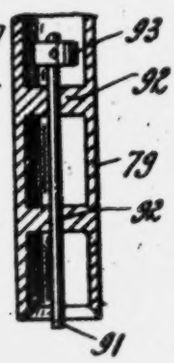
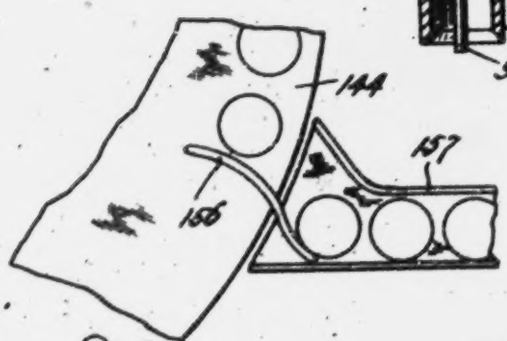


Fig. 26



WITNESSES

Wm. Klink

S. Birnbaum

INVENTOR

A. Bogdánffy

BY

Sigmund Herzog

ATTORNEY

BLANK

PAGE

1476

A. BOGDANFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 5.

Fig. 11.

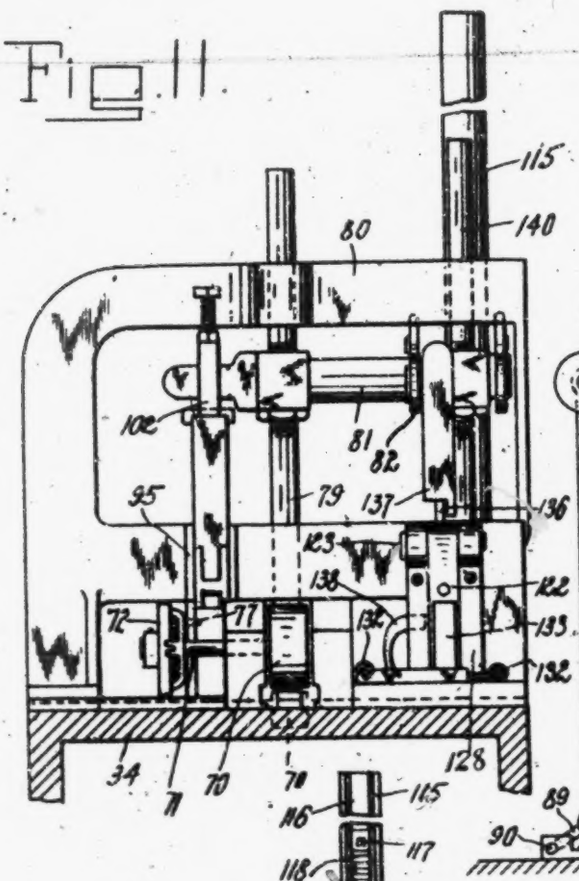


Fig. 12.

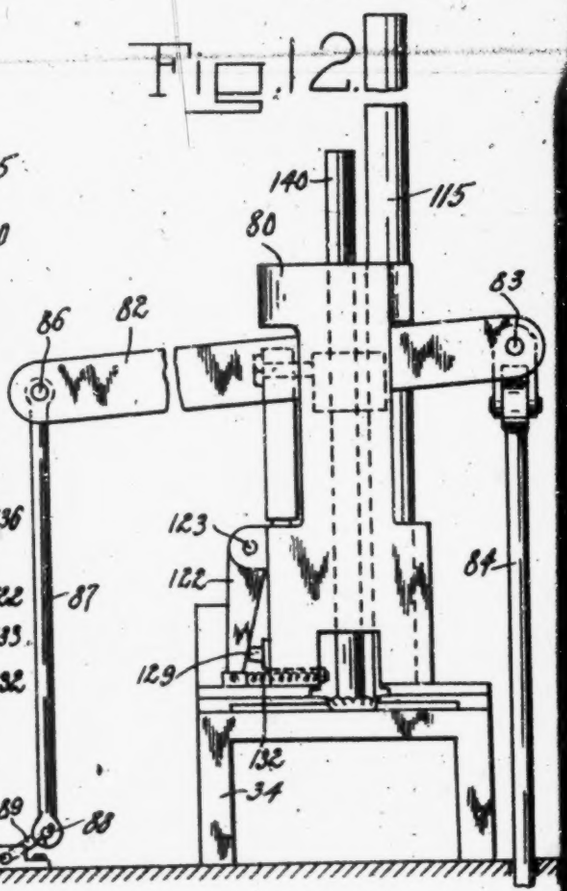
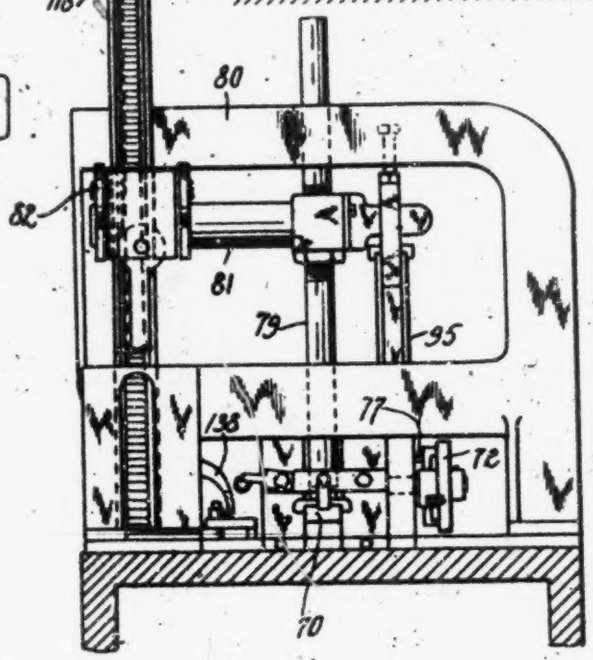


Fig. 10.



WITNESSES

Wm. Klein

L. Birnbaum

INVENTOR

A. Bogdanffy

BY

Sigmund Herzog

his ATTORNEY

BLANK

PAGE

1477

A. BOGDÁNFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 6.

Fig. 14.

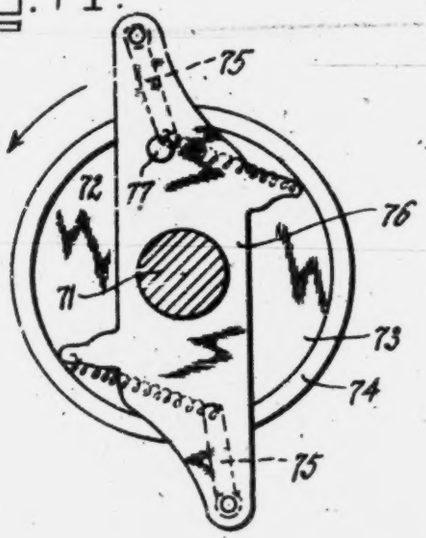


Fig. 13.

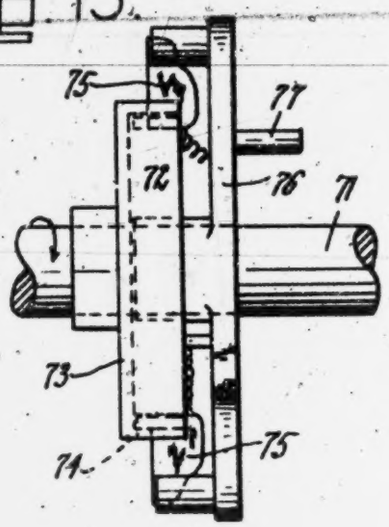


Fig. 16.

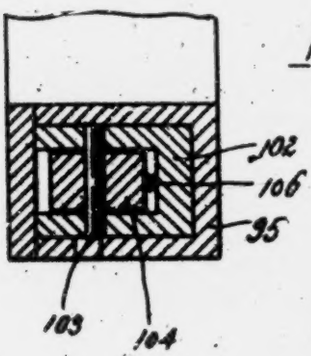


Fig. 15.

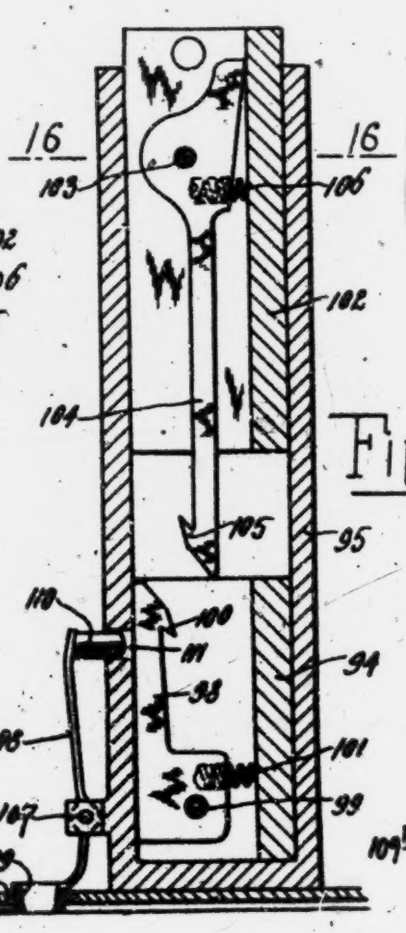


Fig. 18.

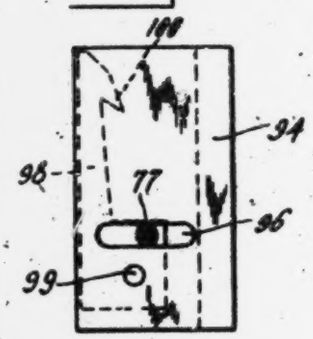
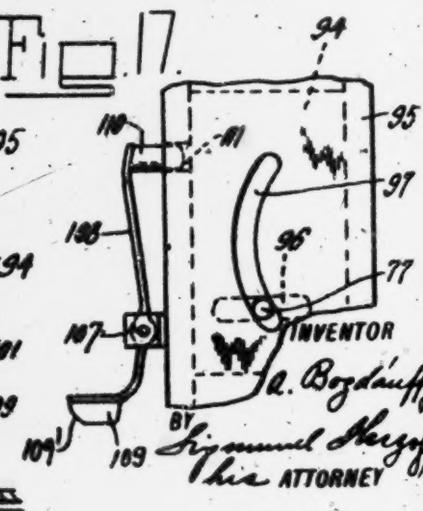


Fig. 17.



WITNESSES

Wm. Klinke

S. Birnbaum

INVENTOR

A. Bogdánffy

BY

Sigmund Herzog

his ATTORNEY

BLANK

PAGE

1478

A. BOGDÁNFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 7.

Fig. 21.

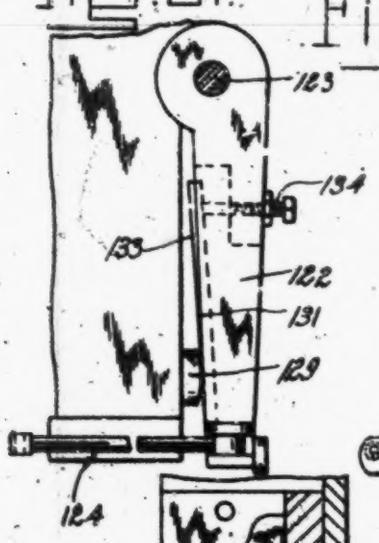


Fig. 20.

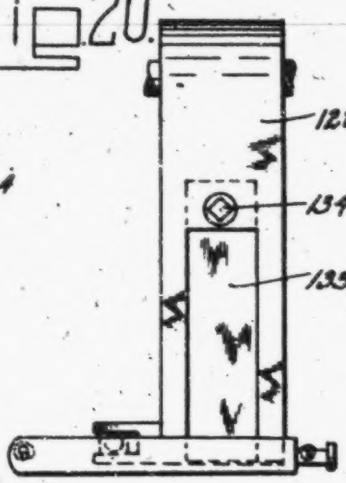


Fig. 19.

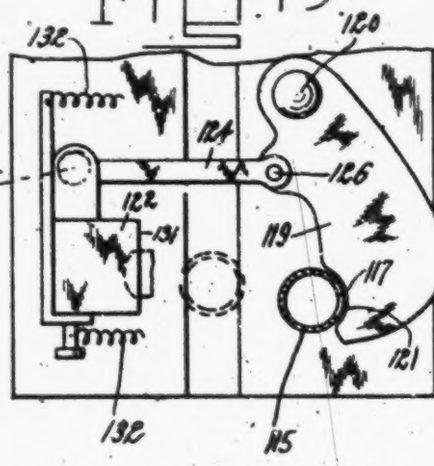


Fig. 22.

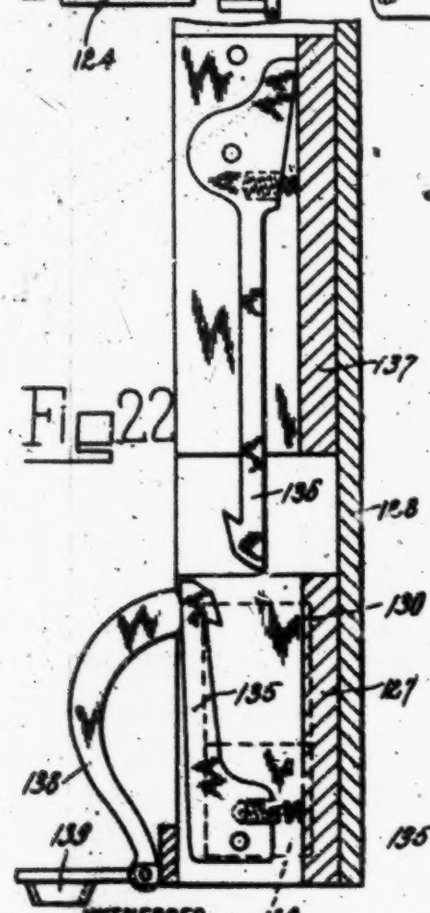


Fig. 23.

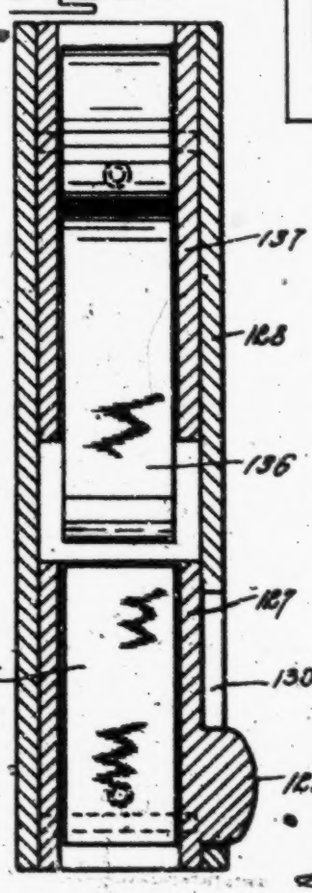


Fig. 24.



WITNESSES

W. Klink

S. Birnbaum

INVENTOR

A. Bogdánffy

BY

Sigmund Haggy

his ATTORNEY

UNITED STATES PATENT OFFICE.

ALEXANDER BOGDÁNFFY, OF NEW YORK, N. Y., ASSIGNOR TO THE INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

MACHINE FOR THE MANUFACTURE OF BOTTLE-CLOSURES.

1,169,608. Specification of Letters Patent. Patented Jan. 25, 1916.

Application filed July 5, 1913. Serial No. 777,466.

To all whom it may concern:

Be it known that I, ALEXANDER BOGDÁNFFY, a subject of the King of Hungary, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for the Manufacture of Bottle-Closures, of which the following is a specification.

The present invention relates to a machine for the manufacture of bottle closures of the class known as "crown cork sealing caps or closures." Closures of this type comprise usually three parts, that is a metallic cap having a corrugated flange to be locked to the exterior of the bottle neck, a sealing disk or packing of cork or the like, and an impervious binding medium, for instance in the form of a disk, interposed between the metallic cap and the sealing disk. In manufacturing these caps, the binding material is fused or softened and the assembled closure subjected to pressure before the binding material sets or hardens, whereby the said binding material unites the sealing disk with the metallic cap. Usually the three parts mentioned are first assembled and the closure, as a whole, is then subjected to heating action to fuse the binding medium, and afterward pressure is applied. In other cases the caps contain only the binding material when heat is applied to the same, the sealing disk of cork or the like being inserted subsequently.

Heretofore the outer face of the cap has been subjected to heating action, the heat being conducted by the cap to the binding medium. It has been found in practice that only that portion or surface of the binding material which is in contact with the inner surface of the cap is fully fused, that portion or surface which contacts or is to contact with the sealing disk being softened only to a certain extent. The result of this is that, while the binding material is capable of being properly united with the cap, the union between the sealing disk and the binding material is often defective. When plain or undecorated caps are used, it might be possible to expose the same to heating conditions which might fuse the binding material thoroughly, but when decorated caps are charged with the binding material, and such caps subjected to heating action, the extent of exposure to properly fuse the binding material is ruinous to the said decorated caps, inasmuch as it affects the paint used in decorating the same and otherwise defaces the caps. Even plain caps cannot be heated to such an extent which is required to properly fuse both faces of the binding medium for the reason that the said caps are transported from one place to the other on the assembling and uniting machine at a speed which prevents the proper extent of exposure to heat.

One of the objects of the present invention is to provide a machine for the manufacture of closures, which produces a firm union between the three parts of the closure by reason of the binding medium being properly fused at its contact faces with the cap and packing disk, respectively, thereby obviating the defects above mentioned.

Another object of the invention is to devise a bottle closure assembling machine which prevents the feeding of the binding material and sealing disk to the respective assembling elements of the machine in case the cap advancing means fails to bring a metallic cap in proper relation to said assembling elements.

A further object of the invention is to provide a simple and effective means for carrying the caps in succession to the assembling elements of the machine, and the assembled closure to the uniting means of the same.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a machine constructed in accordance with the present invention; Fig. 2 is a side elevation thereof;

Page Tightly Bound

Fig. 3 is a sectional view of the cap feeding device; Fig. 4 is a section taken on line 4—4 of Fig. 3; Fig. 5 is a section taken on line 5—5 of Fig. 3; Fig. 6 is a plan view of the device shown in Fig. 3, certain parts being removed to more clearly show the interior construction; Fig. 7 is a section taken on line 7—7 of Fig. 6, additional parts being placed on top of it; Fig. 8 is a plan view of a detail of the device shown in Fig. 7; Fig. 9 is a plan view of a detail of the device shown in Fig. 6; Fig. 10 is a front elevation of the assembling means of the machine; Fig. 11 is a rear elevation of the device shown in Fig. 10; Fig. 12 is a side elevation thereof; Fig. 13 is a front elevation of the means for actuating the binding material feeding means; Fig. 14 is a side elevation thereof; Fig. 15 is a longitudinal vertical section taken through the means operating the device shown in Fig. 13; Fig. 16 is a section taken on line 16—16 of Fig. 15; Fig. 17 is a side elevation of a detail of the structure shown in Fig. 15; Fig. 18 is a side elevation also of a detail shown in Fig. 15; Fig. 19 is a plan view of the sealing disk feeding means; Fig. 20 is a rear elevation of a detail shown in Fig. 19; Fig. 21 is a side elevation of the mechanism shown in Fig. 20; Fig. 22 is a sectional elevation taken through the means for actuating the sealing disk feeding means; Fig. 23 is a sectional front elevation of the device shown in Fig. 22; Fig. 24 is a rear elevation of a detail of the device shown in Fig. 23; Fig. 25 is a sectional elevation taken through a portion of the uniting means of the machine; Fig. 26 is a plan view of the means for removing the finished product from the machine; and Fig. 27 is a central vertical section taken through the binding material cutting means.

Broadly speaking, the bottle closures are manufactured on the machine, forming the subject matter of the present application, as follows: The inner surface of a cap is first subjected to an intense heat, the result of which is twofold, that is, first, it evaporates or burns the greasy or oily substance usually covering or spotting the inner surface of the cap, thereby cleaning the said surface effectively, and, second, it heats the inner surface of the cap, whereby, when the impervious binding medium is deposited into the same, its contact surface with the cap is properly fused so that it is adapted to adhere perfectly to the inner surface of the cap. After the binding medium has been deposited into the cap, the exposed surface thereof is heated, resulting in a proper fusing of said surface. The binding medium being properly fused, a sealing disk or packing is placed into the cap, after which the assembled closure is subjected to pressure which firmly unites the parts thereof, the binding material being partly or wh hardened when the closure is discha from the machine.

Referring now more particularly to drawings, the numeral 30 indicates the porting frame of the machine, for inst casing-shaped, and provided with a h zontal top or table-section 31. A sub tial distance below the table-section is j naled in the frame the main driving s 32, to which rotation is imparted, for stance, by a belt running over a driving ley 33, which is in any suitable ma rigidly fastened to the said shaft. Near of the longitudinal edges of the table mounted upon the same a box-like struct 34, upon the top of which is disposed a p member 35, having a longitudinal groov in its underface, which is adapted to acc modate metallic caps that are fed therei in their inverted positions. This groove tends throughout the length of said p member. Parallel to said groove, and p particularly on each side thereof, is for in the under face of said plate membe longitudinal recess 37, said recesses open into said groove, and having slidably ranged therein each a feeding strip These strips are adapted to reciprocate the longitudinal direction of the box-l structure 34, and also transversely ther toward and away from each other. T feeding strips 38 are provided in their posite edges, denoted by the numerals 39, with registering substantially semi-circu notches 40, 40. The edges of these note are adapted, when the feeding strips moved toward and close to each other, grip firmly the head portions of the meta caps which are located in alinement w said notches in the groove 36, and, as said strips are advanced in the direction the longitudinal axis of the box-like str ture, to carry them forward a predetermin distance. The caps are brought in their verted positions into the groove 36 on chute 41, which receives them from a h per or similar structure, the construction which need not be described here as it d not form part of the present inventi The means for imparting to the feedi strips a to and fro motion in the direct of the longitudinal axis of the box-l structure 34, which motion will be here after termed "reciprocating motion", i cludes a disk 42, which is keyed or oth wise attached to the driving shaft, and p vided in one of its faces with a cam groo 43. In this groove is seated a roller 44, c ried by a lever 45, one end of which is f crumed at 46 to the frame, its other e carrying a pin 47, that is seated in a slot in the downwardly extending lug 49 of substantially H-shaped block 50. Th block is provided in each of its four le

h a cylindrical bore 51, through which drawn two parallel horizontal rocking fts 51′, which are mounted in the box-structure 34 parallel to the longitudinal of the latter. The block 50 is shiftably ged upon the said rocking shafts, and ded in its upper face with transverse es 52, into which project lugs 53 upon nderfaces of the feeding strips 38. The es 52 are of a length to permit the feeding strips to move toward and away from each other; this movement will be termed hereinafter "the swinging movement of the feeding strips". The swinging movement of the feeding strips is effected by a bar 54, which is pivoted to a bracket 54′, that is conducted in its up and down movement by vertical guides 55 upon the frame 30, the reciprocating movement of said bracket being caused by a roller 56, which is seated in the cam groove 43 and carried by said bracket. The upper end of the bar 54 is provided with a pin 57, seated in slots 58 of two bell-cranks 59, which are keyed, or otherwise attached, to the rocking shafts 51′, the free ends of their other arms engaging apertures 60 in slides 61, in the upper faces of which are formed longitudinal grooves 62, into which project downwardly extending lugs 63 upon the under faces of the feeding strips 38. The slides 61 are located in recesses 61′ in the upper face of the box-like structure, and are adapted to move toward and away from each other transversely of the said box-like structure.

From the foregoing it appears that the lever 45 causes a reciprocating motion of the feeding strips, and the bar 54 a swinging motion, that is to say a motion toward and away from each other. The cam groove 43 is shaped in such a manner and the rollers 44 and 56 disposed in such relation that, whenever the lever 45 swings toward the chute 41, the feeding strips are held in their open positions, that is to say away from each other, and, when the lever 45 has reached its outermost position in the direction stated, the feeding strips are caused by the bar 54 to move toward each other into gripping positions, the said feeding strips being kept in such gripping positions while the lever 45 moves in the opposite direction and until it has reached its outermost point in that direction, when the bar 54 causes said strips to recede from each other. When the lever 45 reaches its outermost position in the direction of the chute 41, its outermost notches are brought in operative relation to a cap just received from the chute. The feeding strips then move toward each other, grip the said cap and obviously those in front of the same, advance them a predetermined distance in the groove, and when reaching this position, the feeding fingers recede from each other, thereby leaving the caps at rest. In this manner there are always a plurality of caps in the groove 36, arranged at distances from each other which correspond to the distances between the notches in a feeding strip. All caps in the groove are brought to rest simultaneously and are also advanced simultaneously.

A cap received from the chute comes first to rest in registering position with a circular opening 64 in the plate member 35. Above this opening is arranged a heating means, consisting, preferably, of a gas burner 65 of the "Bunsen" type to cause a complete combustion of the illuminating gas in order to prevent unconsumed particles of carbon settling on the inner surface of a cap. Inasmuch as the caps travel in the groove 36 in their inverted positions, the mouth of the burner must point downward, the flame being directed to the inner surface of a cap by compressed air that is conducted to the said burner. The result of this action will be two-fold, first, it evaporates or burns the greasy or oily substance usually covering or spotting the inner surface of the cap, thereby cleaning the said surface effectively and, second, it heats the inner surface of the cap, whereby, when the impervious binding medium is deposited into the same, its contact surface with the cap will be properly fused so that it will be adapted to adhere perfectly to the inner surface of the cap. The removing of the oily or greasy substance materially aids such union.

After the inner surface of the cap has been heated in the manner described, it is brought by the feeding strips into registering position with a circular opening 66 in the plate member 35, stopping there to receive the binding medium. The binding medium is deposited into the cap in the form of a disk, which is cut from a strip 67 of suitably prepared paper or other material, that is wound upon a reel 68. This reel is journaled in the reel of the machine, the strip being conducted therefrom into a guide 69, to pass between the feeding rollers 70. The upper one of the feeding rollers is fixedly attached to a shaft 71, which is journaled in the frame of the machine and carries on its outer end a friction clutch 72. The clutch comprises a disk 73, keyed or otherwise attached to said shaft, and provided with a flange 74, in engagement with spring pressed dogs 75, which are carried by a lever, 76, the latter being loosely mounted upon the shaft 71, and provided with a pin 77 for actuating the same. When the lever 76 is swung in the direction of the arrow shown in Fig. 14 of the drawings, the disk 73 is given a turn through a corresponding distance, carrying with it the upper feeding roller 70, whereby the paper strip 67 is advanced a corresponding distance. When the lever 76 swings in

Page Tightly Bound

the other direction, obviously, the roller 70 remains stationary. The pin 77 is oscillated by means hereinafter to be described.

The rollers 70 advance the paper strip intermittently to the cutting means, comprising a tubular cutter 79, reciprocably arranged, in registering position with the opening 66, in a frame 80, that is disposed above the plate member 35. To the cutter 79 is secured a horizontally extending arm 81, carrying an actuating arm 82, to one end of which is pivoted at 83 the rod 84 of an eccentric 85, that is keyed, or otherwise attached, to the main driving shaft 32. To guide the movement of the actuating arm 82, its other end is pivoted at 86 to one end of a rod 87, the other end of which, in turn, is secured at 88 in a similar manner to a link 89, that is fulcrumed at 90 to the frame of the machine. Upon the downward movement of the cutter 79, a disk of binding material is cut from the strip 67, said disk being automatically forced, upon the upward movement of the cutter, by a stem 91 into the metallic cap. The stem 91 is slidably arranged in guides 92 within the cutter, and carries upon its upper end a weight 93. When, therefore, the cutter 79 moves upward, the weight 93 will force the stem 91 downward and thereby the paper disk into the cap. After this, upon the further upward movement of the cutter, the uppermost one of the guides 92 will engage the weight 93 and lift thus the stem 91 out of the opening 66 in the plate member 35. Around the opening 66 is formed a water jacket 66', in which circulates a cooling fluid to prevent the strip 67 from being affected by the heat of the burner 65.

The means for actuating the lever 76 of the friction clutch comprises a slide 94, which is reciprocably arranged in a vertical guide 95, formed upon the frame 80. This slide is provided with a horizontal slot 96, in which is seated the pin 77 of the lever 76, and in the guide 95 is formed an arc-shaped slot 97, through which the pin 77 projects. Within the slide 94 is disposed a catch 98, pivoted at 99 to the said slide and provided upon its upper end with a hook 100. A spring 101 tends to force the said catch toward and into engagement with one of the sides of the guide 95. A second slide 102 is also reciprocably arranged in the guide 95, and attached to the arm 81. To this slide is pivoted at 103 a downwardly extending pawl 104, its hook 105 being adapted to engage the hook 100 of the catch 98. A spring 106 forces the hook 105 of the pawl 104 toward and into engagement with the hook 100 of the catch 98. To the guide 95 is pivoted at 107 a lever 108, its lower end carrying a sleeve 109 which is seated in the opening 64 in the plate member 35, while its upper end is provided with a pin 110, which is adapted to project through an aperture 111 in the wall of the guide 95 into the latter. The front edge 109' of the sleeve 109 is tapered. Normally the hook 100 of the catch 98 is in engagement with the hook 105 of the pawl 104 as will be presently described; when, therefore, the arm 81 moves upward, the slide 94 moves therewith and thereby causes the lever 76 of the friction clutch to swing in the direction of the arrow shown in Fig. 14 of the drawings, advancing thus the paper strip a predetermined distance. Upon the downward movement of the arm 81, the paper disk is cut and deposited in the manner above described into the cap, the slide 94 being lowered by the slide 102, contacting therewith, thereby swinging the lever 76 in the opposite direction, during which movement obviously the shaft 71 of the feeding roller 70 remains stationary. If during the downward movement of the slides 94 and 102 there is no cap in registering position with the circular opening 64, the sleeve 109 drops to the bottom of the groove 36, the pin 110 being thus withdrawn from the guide 95. The spring 101 will then disengage the hook 100 of the catch 98 from the hook 105 of the pawl 104. When, therefore, the slide 102 moves upward, it will not carry with it the slide 94, and for this reason the paper strip 67 will not be advanced. In such case, obviously, upon the next downward movement of the cutter 79, no binding disk will be cut. In other words, whenever the feeding strips fail to bring a cap in registering position with the opening 66, no paper disk is cut, nor is one forced through the opening 66 into the groove 36. If a cap is brought into proper position relative to the opening 64, the said cap engages the front edge 109' of the sleeve 109 and lifts the same, thereby causing the pin 110 to project into the guide 95 and to force the hook 100 of the catch 98 against the action of the spring 101 into the path of the hook 105 of the pawl 104. The slide 94 is thus carried upward during the next upward movement of the cutter, and the paper strip fed in operative relation to said cutter.

After the binding medium has been deposited into the cap, the latter is advanced by the feeding strips, and stops in registering position with a circular opening 112 in the plate member 35, above which is disposed a burner 113, that is similar in construction to the one above mentioned. The exposed surface of the binding disk is heated thereby, this heating action resulting in a proper fusing of the exposed surface; the flame which is directed to the said surface by compressed air causing at the same time the binding medium to assume the shape of the inner surface of the cap.

The binding medium having been properly fused, the cap is advanced by the feed-

ing strips, and stops in registering position with a circular opening 114 in the plate member 35, where it receives a sealing disk or packing of cork or the like. The sealing disks are placed into a vertical tube 115, held upon the frame 80, said tube being provided with a longitudinal slot 116, through which a finger piece 117 of a weight 118 protrudes, said weight being placed on top of said sealing disks, and serves to feed them to a conveyer 119, which engages the lowermost of the disks in the tube and transports it into registering position with the circular opening 114. This opening tapers toward the plane of the top portion of the box 34, its upper diameter being larger than that of a sealing disk and its lower diameter being somewhat smaller than that of a disk. The purpose of this arrangement will be explained hereinafter. The conveyer 119 is made in the form of an oscillating plate, which is pivoted at 120 to the plate member 35, its acting end being provided with a notch 121, that is adapted to accommodate a sealing disk. The conveyer 119 is actuated by a lever 122, which is fulcrumed at 123 to the frame 80, and connected by a link 124 with said conveyer; said link being pivoted at 125 and 126 to the said lever and conveyer, respectively. The lever 122 is actuated by a slide 127, reciprocably disposed within a guide 128, the latter being formed upon the frame 80. This slide is provided with a cam 129, projecting through a slot 130 in said guide. The cam bears against the inclined face 131 of the lever 122, the latter being held in contact with said cam by springs 132, which are fastened to the said lever and the frame. The inclined face 131 of the lever is, preferably, formed by a blade spring 133, fastened to the lower end of the lever, and adapted to be adjusted by a set screw 134 to predetermine the swing of the lever. To the slide 127 is pivoted a spring pressed catch 135, which is in all respects identical in construction with the catch 98 above described, and adapted to cooperate with a pawl 136, carried by a slide 137, the latter two elements being similar in construction to the slide 102 and the pawl 104 above described. The slide 137 is attached to the arm 81 above described. A lever 138 is pivoted to the guide 128, said lever being similar to the lever 108 above described, its sleeve 139 being disposed in the opening 112. If a cap is located in the groove 36 in registering position with the opening 112, to be brought into registering position with the opening 114 at the next forward movement of the feeding strips, the lever 138 swings the catch 135 into the path of the pawl 136. The slide 127 will thus be carried upward by the arm 81 and actuate by means of its cam 129 by the intermediary of the lever 122 the conveyer 119, the latter transporting a sealing disk into registering position with the opening 114. The springs 132 return the conveyer and the parts cooperating therewith to their normal positions. Obviously, if there is no cap brought to the opening 112, the slide 127 is not lifted by the slide 137, and the conveyer 119 remains, therefore, stationary. The sealing disk is forced into the cap by an assembling plunger 140, which is reciprocably arranged in the frame 80 and attached to the arm 81. During the downward movement of the plunger 140, the disk is forced by said plunger through the tapering opening 114 into the cap. It should be noted that, since the diameter of the lower end of the opening 114 is smaller than that of a sealing disk, the latter will be compressed to some extent, and, when forced into the cap, will expand and be held thus firmly in the cap. The cap, when in registering position with the opening 114, rests upon a die 141 in the form of a screw bolt, its upper face 142 being concave, conforming thus to the shape of the outer face of the head of a cap.

The assembled crowns are advanced by the feeding strips to a uniting head 143, comprising a disk 144, keyed or otherwise attached to a vertical shaft 145. To this shaft is fixedly attached a worm gear 146, the teeth of which mesh with a worm 147, that is carried by the main driving shaft 32. With the disk 144 are made integral, or there may be attached thereto by means of spokes 148, two rings 149 and 150. These rings are disposed above the disk 144 a suitable distance from each other, as clearly shown in Fig. 2 of the drawings. A plurality of vertically disposed plungers 151 are slidably arranged in the rings 149 and 150, said plungers being located parallel to the shaft 145, and their lower ends being adapted to be forced by springs 152 into contact with the disk 144. The upper ends of the plungers, which project above the ring 150, are provided each with a peripheral recess 153, which is adapted to be engaged by a stationary cam 154, said cam being formed upon a plate 155, that is disposed in parallel relation to the ring 150 above the same. The cam is arranged in the path of the peripheral recesses of the plungers, whereby, as the uniting head rotates, said plungers will be raised by said cam, their springs lowering them as soon as disengaged from said cam. The cam raises a plunger before it arrives opposite to the feeding strips, and is disengaged from said plunger after it has left the said feeding strips. When a plunger arrives in registering position with the feeding strips, an assembled crown is placed upon the disk 144 beneath said plunger and, after the said plunger has been disengaged from the cam, its spring 152 will force the same

Page Tightly Bound

against the assembled crown cork, placing thereby the closure under compression and holding it in this condition until the closure makes nearly a full revolution around the shaft 145, when the plunger again arrives at the cam and is disengaged from the closure, allowing the latter to be guided by a projection 156 into a chute 157, to slide into a receptacle placed beneath the same. It is obvious that the binding material in the closure is still in its fused or softened condition when arriving upon the disk 144, so that this binding medium, due to the pressure, will firmly unite the parts of the closure, the binding medium being partly or wholly hardened when the closure is discharged into the chute.

It is obvious that the outer face of the cap is in no way affected by heat. The decoration thereon will, therefore, remain in its original state: furthermore both faces of the binding medium are properly fused with a result that a firm union is obtained between the parts of the closure.

The operation of the machine is obvious from the foregoing. It is to be noted that a simple and effective cap transporting mechanism is obtained, means being provided for preventing the advancing of the coated paper strip, the cutting and depositing of a binding disk and the feeding of a sealing disk in case caps are not brought in operative relation to the binding material depositing and sealing disk inserting elements of the machine.

What I claim is:—

1. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for subjecting the inner face of the head of a metallic cap to heat, of means for inserting a binding material into the cap, means for applying heat directly to the exposed face of the binding material, means for depositing a sealing disk into the cap on top of the fused binding material, and means for conveying the cap in succession to each of the elements mentioned.

2. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for subjecting the inner face of the head of a metallic cap to heat, of means for inserting a binding material into the cap, means for applying heat directly to the exposed face of the binding material, means for depositing a sealing disk into the cap on top of the fused binding material, means for holding the sealing disk under pressure within the cap after the parts are assembled and while the binding material is hardening, and means for conveying the cap in succession to each of the elements mentioned.

3. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for depositing a sealing disk into the cap, a conveyer for carrying the sealing disk to said depositing means, a swinging lever connected to said conveyer, a continuously reciprocating slide, a second slide, coacting means upon said two slides adapted to connect the same, whereby said slides are caused to move together, means upon said second slide for actuating, when moving in one direction, said lever, whereby said conveyer brings a sealing disk into registering position with said depositing means, and means coöperating with said connecting means upon said second slide and actuated by the caps upon said transporting means, whereby said last named connecting means is brought into operative position in relation to said connecting means upon said first slide when said transporting means brings a cap into registering position with said depositing means.

4. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for depositing a sealing disk into the cap, a conveyer for carrying the sealing disk to said depositing means, a swinging lever connected to said conveyer, a continuously reciprocating slide, a second slide, a pawl upon said first slide, a catch upon said second slide adapted to coact with said pawl so as to connect said two slides, whereby they are caused to move together, means upon said second slide for actuating, when moving in one direction, said lever, whereby said conveyer brings a sealing disk into registering position with said depositing means, and means coöperating with said catch and actuated by the caps upon said transporting means, whereby said catch is brought into operative position in relation to said pawl when said transporting means brings a cap into registering position with said depositing means.

5. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for cutting a disk from a strip of binding material and inserting it into the cap, a roller for feeding the strip to said cutting means, a clutch connected with said roller, a continuously reciprocating slide, a second slide, coacting means upon said two slides adapted to connect the same, whereby said slides are caused to move together, means upon said second slide for rendering, when moving in one direction, said clutch operative, whereby said roller advances the strip of binding material toward said cutting means, and means coöperating with said connecting means upon said second slide and actuated by the caps upon said transporting means, whereby said last named connecting means is brought into

perative position in relation to said connecting means upon said first slide when said transporting means brings a cap into registering position with said inserting means.

6. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for cutting a disk from a strip of binding material and inserting it into the cap, a roller for feeding the strip to said cutting means, a clutch connected with said roller, a continuously reciprocating slide, a second slide, a pawl upon said first slide, a catch upon said second slide adapted to coact with said pawl so as to connect said two slides, whereby they are caused to move together, means upon said second slide for rendering, when moving in one direction, said clutch operative, whereby said roller advances the strip of binding material toward said cutting means, and means cooperating with said catch and actuated by the caps upon said transporting means, whereby said catch is brought into operative relation to said pawl when said transporting means brings a cap into registering position with said inserting means.

Signed at New York, in the county of New York and State of New York, this 2nd day of July A. D. 1913.

ALEXANDER BOGDÁNFFY.

Witnesses:

JOHN ALBERTI,

SIGMUND HERZOG.

1486

A. BOGDÁNFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED MAY 27, 1911.

1,053,565. Patented Feb. 18, 1913.

3 SHEETS—SHEET 1.

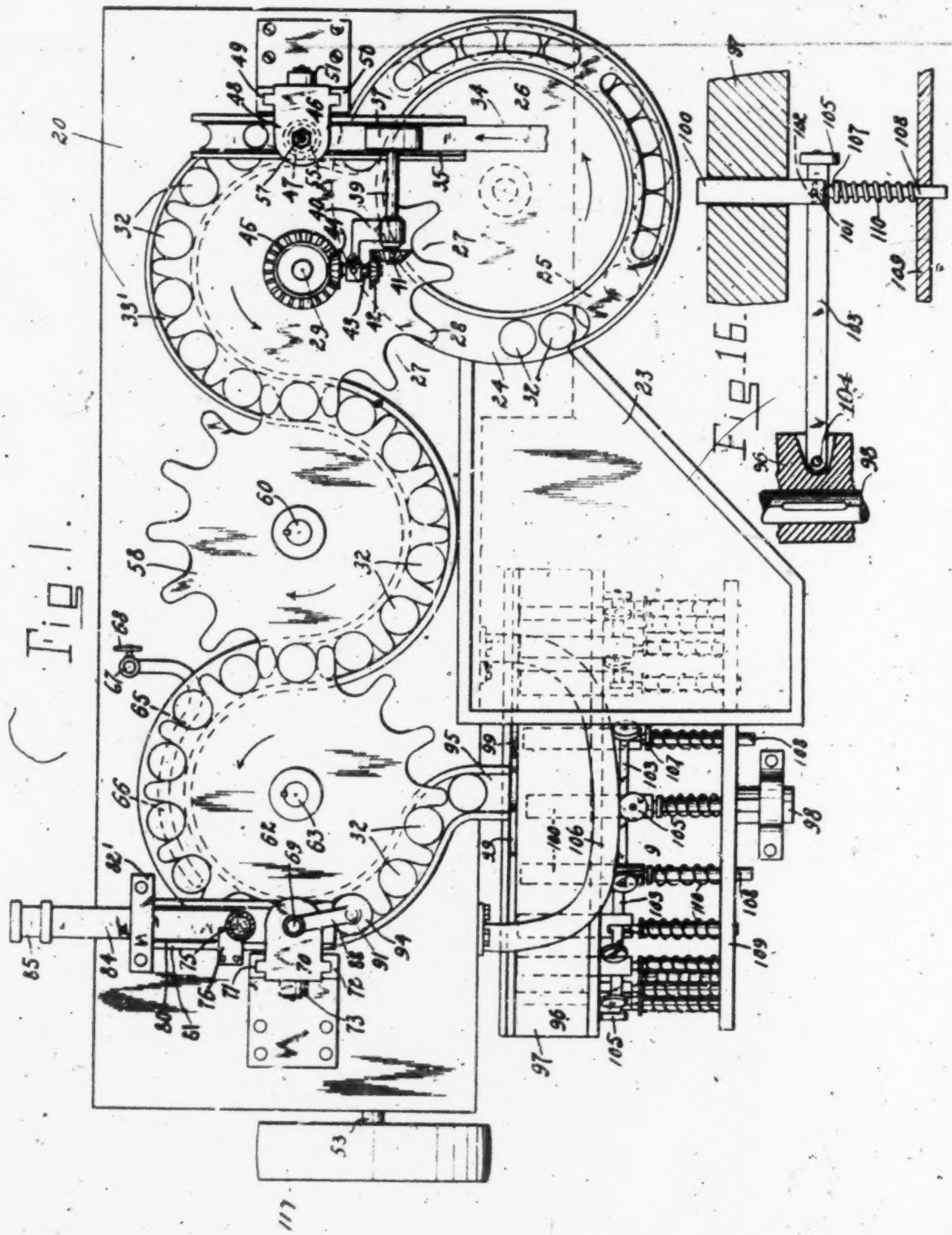


Fig. 1.

Fig. 16.

WITNESSES

W. Klink

S. Birnbaum

INVENTOR

Alex Bogdánffy

BY

Sigmund Herzog

his ATTORNEY

BLANK

PAGE

1487

A. BOGDÁNFFY.

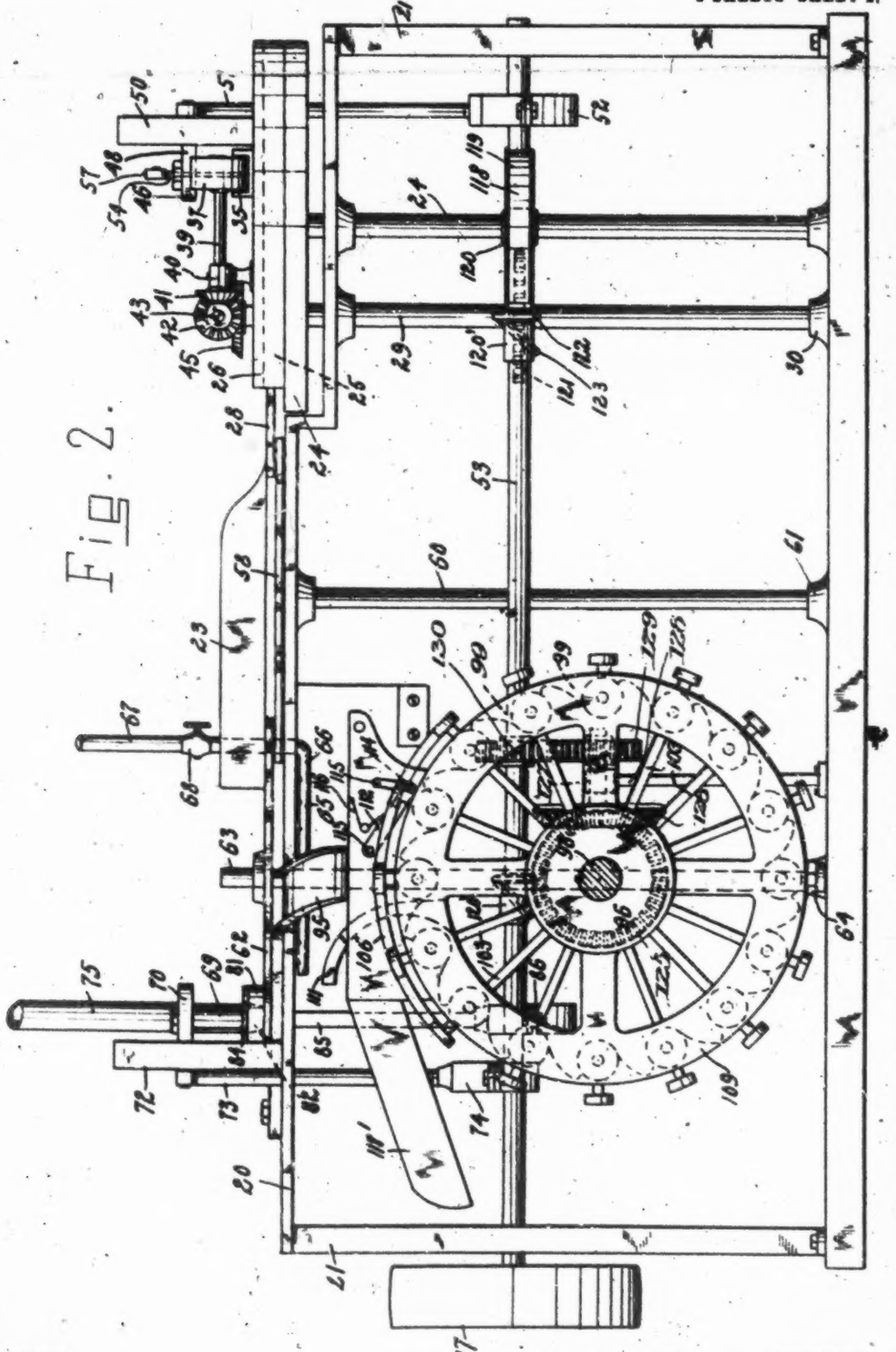
MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED MAY 27, 1911.

1,053,565. Patented Feb. 18, 1913.

3 SHEETS—SHEET 2.

Fig. 2.



WITNESSES.
W. Klink
S. Birnbaum

INVENTOR
Alex Bogdánffy
BY
Sigmund Herzog
his ATTORNEY

BLANK

PAGE

1488

A. BOGDÁNFFY.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED MAY 27, 1911.

1,053,565. Patented Feb. 18, 1913.

3 SHEETS—SHEET 3.

Fig. 15.

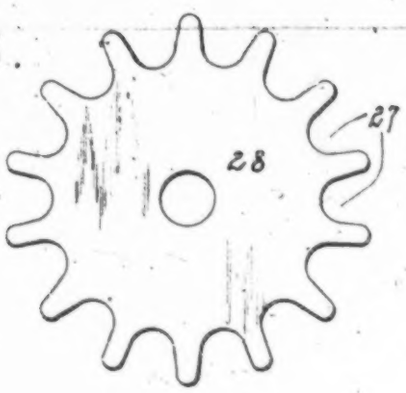


Fig. 12.

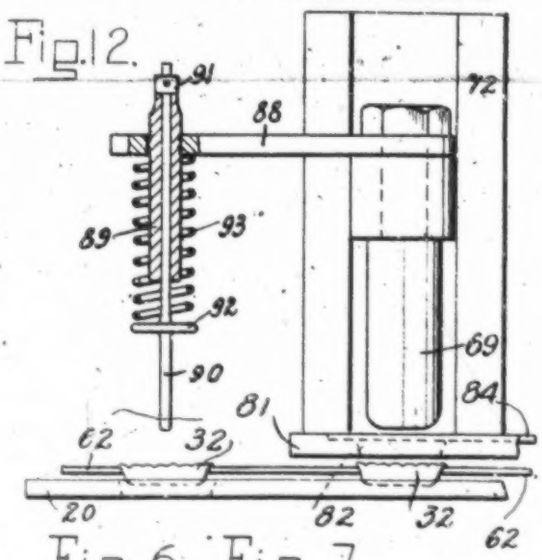


Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.

Fig. 8.

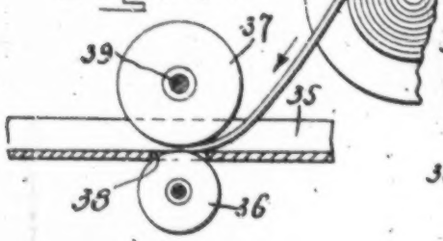


Fig. 9.

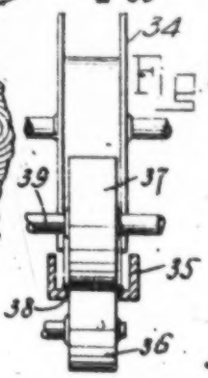


Fig. 13.

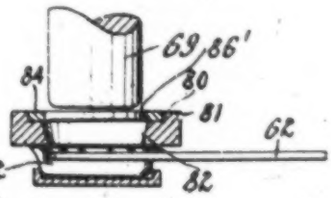


Fig. 10.

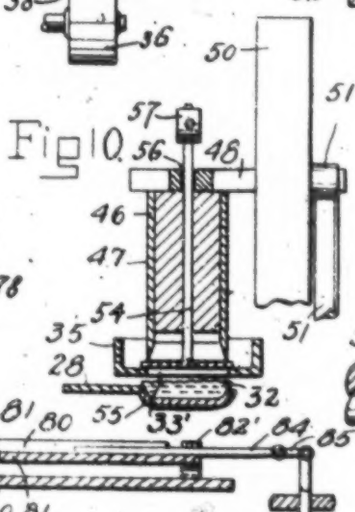


Fig. 11.

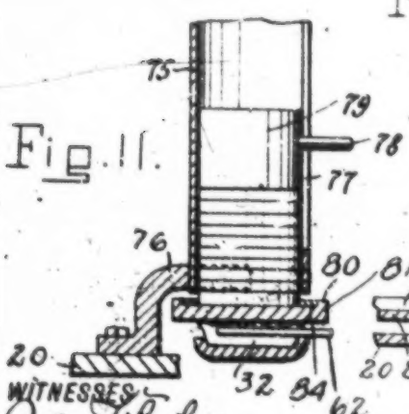


Fig. 14.

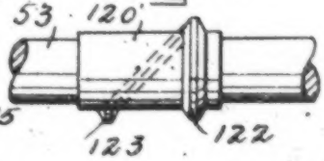




Fig. 17.



WITNESSES:

H. Klink

L. Birnbaum

INVENTOR

Alex Bogdanffy

BY

Sigmund Hecht

ATTORNEY

UNITED STATES PATENT OFFICE.

ALEXANDER BOGDÁNFFY, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

MACHINE FOR THE MANUFACTURE OF BOTTLE-CLOSURES.

1,053,565. Specification of Letters Patent. Patented Feb. 18, 1913.

Application filed May 27, 1911. Serial No. 629,871.

To all whom it may concern:

Be it known that I, ALEXANDER BOGDÁNFFY, a subject of the King of Hungary, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for the Manufacture of Bottle-Closures, of which the following is a specification.

The present invention relates to machines for the manufacture of bottle closures of the class known as "crown cork sealing caps or closures". Closures of this type comprise usually three parts, that is a metallic cap or crown, having a corrugated flange to be locked to the exterior of the bottle neck, a sealing disk or packing of cork or the like, and a disk of impervious binding material interposed between the metallic cap and the cork disk. These caps have been manufactured heretofore in the following manner: The three parts mentioned are assembled and the closure, as a whole, is then subjected to heating action, whereby the interposed impervious binding material is softened or fused so that, when pressure is applied to the closure, the impervious binding medium will firmly unite the packing disk with the metallic cap or crown. This process of manufacture has, however, several defects, to wit: The packing disks are liable to be injured by the heating action, no matter whether they are of cork or of a composite type. If cork sealing disks are employed, they will lose to some degree their toughness, or in other words they will become brittle, whereby the sealing properties of the same will be impaired to a great degree. If, on the other hand, sealing disks of a composite type are used, they might be rendered entirely useless for the reason that they contain a fusible material, which is, of course, affected by the heat. Another defect of the process of manufacture hereinbefore mentioned consists in that, when the parts are assembled, the diameter of the metallic cap is slightly reduced so as to grip the sealing disk. When now, after the assembling, the closure is heated, the moisture and air between the members of the closure cannot escape. Moreover, when then the parts are subjected to heating action, the air will be expanded and act as a cushion, as it were, when the closure is subjected to pressure, and thus prevent a firm union between the parts thereof.

The object of the present invention is to obviate these defects mentioned, and with this and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a device constructed in accordance with the present invention; Fig. 2 is a front elevation thereof; Fig. 3 is a sectional view of a metallic cap inverted or in the position in which it passes to the machine ready to receive the other parts of the composite sealing closure; Fig. 4 is a plan view of the sealing disk of the closure; Fig. 5 is a front elevation thereof; Fig. 6 is a plan view of an impervious binding disk which is inserted into the metallic cap; Fig. 7 is a front elevation thereof; Fig. 8 is a sectional view of the means for feeding the strip of paper from which the binding disks are cut out; Fig. 9 is a front elevation of the device shown in Fig. 8; Fig. 10 is a vertical section taken through the means for cutting the strip of paper; Fig. 11 is a vertical section taken through the sealing disk holding means; Fig. 12 is a side elevation, partly in section, of the means for forcing the sealing disk into the metal cap; Fig. 13 is a sectional view of the means for conveying the sealing disk to the metallic cap; Fig. 14 is a detail view of a worm for intermittently rotating the transporting means of the device; Fig. 15 is a plan view of a transporting wheel; Fig. 16 is a detail of construction of the pressure applying means of the apparatus; and Fig. 17 is a side elevation, partly in section, of a further detail of construction.

In the drawings, the numeral 20 indicates a horizontal table, which is supported by legs or standards 21, the latter being at-

tached in any suitable manner to the floor. Above the plane of the table 20 is arranged a substantially horizontal support 23 onto which the metallic caps are placed in their inverted positions, to be passed manually to a continuously rotating carrying disk 24, which conveys the caps, one after the other, along a channel 25 in the direction of the arrow indicated in Fig. 1 of the drawings, which channel is formed between the said carrying disk 24 and a cover plate 26. This cover plate is attached to the table 20 in any suitable manner. The carrying disk 24 feeds the inverted caps or crowns one after the other to the recesses 27 of a star wheel 28, which is attached to a vertical shaft 29, journaled in the table 20 and in a bearing 30. To this shaft intermittent rotary motion is imparted in the direction of the arrow by means which will be hereinafter described. The star wheel 28 overlies partly the carrying disk 24, engages the flange portions 31 of the caps 32, and conveys them along a groove 33′ in the table 20 to rest directly beneath the means which cuts the impervious binding disk 33 from a strip of suitably prepared paper or other material, and places the disk into the inverted cap.

The paper strip, from which the disks 33 are cut, is wound upon a reel 34, which is suitably journaled in the frame of the machine, and from which the strip is conducted into a guide 35 to pass between the feeding rollers 36 and 37. The feeding roller 36 is journaled in the frame of the machine and projects through a slot 38 in the guide 35 above the lower plane of the latter, while the spindle 39 of the roller 37 is journaled in a bearing 40, and carries at its outer end a bevel gear 41, meshing with a similar gear 42, upon the shaft 43, upon the opposite end of which is mounted another bevel gear 44 in mesh with a similar gear 45, which latter is attached to the shaft 29 of the star wheel 28. It will be observed that the feeding rollers 36 and 37 will thus rotate intermittently, and advance the paper strip to the cutting means 46. The cutting means comprises a tubular cutter 47, secured in any suitable manner to an arm 48, which is slidably arranged in a vertical guideway 49 of a bracket 50, attached to the table 20. The arm 48 is pivotally engaged by a rod 51, which is fastened to the strap of an eccentric 52, the latter being mounted upon the main driving shaft 53 of the machine. The driving shaft is journaled in bearings, which are secured to or made integral with the standards or legs 21. As the paper disk is cut from the strip, it will be automatically forced, upon the upward movement of the cutter 47, by a stem 54 through a hole 55 in the guide 35 into the metallic cap. The stem 54 projects through an opening 56 of the arm 48 above the plane of said arm and carries upon its upper end a weight 57. When therefore the cutter 47 moves upward the weight 57 will force the stem 54 downward and thereby the paper disk into the cap. After this, upon the further upward movement of the arm 48, the latter will engage the weight 57 and lift thus the stem 54 out of the hole 55 in the guide 35. The paper disk having been deposited in the metal cap, the latter will be transported by the wheel 28 within the reach of a star wheel 58, which rotates in a direction opposite to that of the star wheel 28 and lies in a plane below that of the wheel 28, engaging thus the heads 59 of the metal caps 32. The star wheel 58 is mounted upon a shaft 60, which is suitably journaled in the frame and in a bearing 61. The caps and paper disks are by the wheel 58 brought within the reach of a third star wheel 62. This star wheel overlies partly the wheel 58 and engages the metal caps at their flange portions 31, transporting the same intermittently to the means which force the sealing disks into the caps. The star wheel 62 is attached to a shaft 63, mounted in the frame of the machine and in a bearing 64. This shaft moves also intermittently, and is actuated also from the main driving shaft 53 in a manner hereinafter to be specified.

While being transported by the wheel 62, the caps and the binding disks therein are heated by a suitable heating means, for instance a gas heater 65. This heater comprises a perforated tubular member 66, connected with the gas supply pipe 67, the communication being controlled by a valve 68. The heater is, preferably, arranged below the table 20. The heat is transmitted to the binding disks by the metal caps directly in contact with the table. The binding material is thus fused or softened for the purpose of uniting the sealing disk to the cap, and for other well known purposes. After heating, the caps are transported by the wheel 62 to an assembling plunger 69, attached to an arm 70, which is slidably arranged in a vertical guide 71 of a bracket 72. The arm 70 is pivotally connected with a rod 73, which is fastened to the strap of an eccentric 74, the latter being keyed to the main driving shaft 53. The sealing disks are placed into a substantially vertical tube 75, which is attached to the table 20 by means of a bracket 76 or otherwise, and is provided with a longitudinal slot 77 through which a finger piece 78 of a weight 79 protrudes, said weight being placed on the sealing disks, and serves to feed the said disks into a guideway 80 of a plate member 81, which is attached to the table by a bracket 82′ in a plane above the plane of the star wheel 62. The plate 81 is provided with an aperture 82 in alinement with the plunger 69. This aperture tapers toward the plane

of the wheel 62, its upper diameter being larger than the diameter of a sealing disk 83, and the diameter at its lower end being somewhat smaller than that of a sealing disk. The purpose of this arrangement will be explained presently. The sealing disks are conveyed in the guideway 80 from below the tubular member 75 to the aperture 82 by a reciprocatable conveyer 84, which is slidably arranged in the guideway 80, and connected by a plurality of links and rods 85, 85 with the strap of an eccentric 86, which is keyed to the main driving shaft 53 of the machine. The conveyer 84 is provided with a recess 86′, which engages the sealing disk in transferring the same to the aperture 82. Obviously the angular relation of the eccentrics 74 and 86 must be such that when the plunger 69 is lifted, the conveyer 84 will move inward and transfer thereby a sealing disk within the reach of the plunger 69, which, in its downward movement, will force the cork disk through the aperture 82 into the metal cap. It should be noted that since the diameter of the lower end of the aperture 82 is smaller than that of the sealing disk, the latter will be compressed to some extent and, when forced into the cap, will expand and be held thus firmly in the cap.

As it happens sometimes that one or the other of the recesses in the star wheel 62 does not contain a metal cap, it becomes necessary to eject the sealing disk from that recess after it has passed the plunger 69. For this purpose the plunger 69 carries a bracket 88, to which a downwardly extending tubular member 89 is attached, in which is slidably arranged a spindle 90, provided upon its upper end with a stop 91 and near to its lower end with a disk 92. Against this disk and the bracket 88 bears a spring 93, tending to force the spindle 90 downward into the recesses of the star wheel 62. The distance between the longitudinal axes of the plunger 69 and the spindle 90 is equal to the distance between two neighboring recesses in the star wheel 62. When therefore the plunger 69 is forced downward to press a sealing disk into the metal cap beneath it, the spindle 90 will be forced into the neighboring recess of the star wheel. If an assembled crown cork is in this recess, the spring 93 will be compressed by the upward movement of the spindle 90. If, however, only a sealing disk is seated in the recess, the spindle 90 will force the same through an opening 94 in the table into a receptacle below said opening, for the reason that the tension of the spring 93 is greater than the resistance offered by the sealing disk in the recess.

The assembled crowns slide down an inclined passage 95 to the uniting head 96. This head comprises a rotary drum 97, keyed to a shaft 98, which is continuously driven from the main driving shaft 53. The drum is provided with a plurality of peripheral recesses 99, which are adapted to receive, one after the other, assembled crown corks from the passage 95. Plungers 100 are slidably arranged in the drum in alinement with the recesses, said plungers being located parallel with the longitudinal axis of the drum, and provided at their outer forked ends each with a pin 101, which engages slots 102 in radial arms 103, the inner ends of which are pivoted at 104 to the hub of the drum, while their upper free ends carry rollers 105, which are adapted to coact with a cam 106, attached to the frame of the machine. The arms 103 are engaged by the pointed ends 107 of spring pressed pins 108, which are slidably mounted on a ring 109, attached to the shaft 98. The cam 106 is arranged in the path of the rollers 105, whereby, as the drum 97 rotates, the plungers 100 will be forced against the action of the springs 110 upon the pins 108 out of the recesses 99 in the drum before they arrive opposite to the passage 95. When a recess arrives at this point, a crown cork will slide into the same, and after the corresponding roller 105 is disengaged from the cam, the spring 110 will force the plunger against the assembled crown cork, placing thereby the parts of the closure under compression, and holding it in this condition until the closure makes very nearly a full revolution around the shaft 98, when the roller of the plunger again arrives at the cam 106, whereby the plunger is disengaged from the closure, allowing the closure to be guided by a projection 111 into a chute 111′. It is obvious that the binding disk in the closure is still in its fused or softened condition when arriving in a recess of the drum 97, so that this binding medium, due to the pressure, will firmly unite the parts of the closure, the binding medium being partly or wholly hardened when the closure is discharged into the chute 111′. It is to be noted that an intimate union is formed between the sealing disk and the metal cap as there is no air between the said two parts to prevent such union. The sealing disk, on the other hand, is in its original tough condition, as it has not been subjected to the influence of the heating means upon the machine.

A tongue 112 is pivoted at 113 to a stationary part of the frame, its free end being provided with a pin 114, engaging an arc-shaped slot 115 in the frame. A spring 116 forces the tongue 112 into contact with the drum, so that closures, which are not properly seated in their recesses, will be forced into the same before the plunger engages them.

Motion is imparted to the entire mechanism through the intermediary of a pulley

117, which is keyed to the main driving shaft 53. The shaft 24′ of the continuously rotating disk 24 is driven by a belt 118, running over pulleys 119 and 120, attached to the shafts 24′ and 53, respectively. The shafts 29 and 63 are driven by worms 120′, 120′ upon the main driving shaft 53, engaging worm gears 121, 121 upon the shafts 29 and 63. The worms 120′, 120′ have straight portions 122, and while these are engaging the worm gears 121, 121, the latter are at rest. When the inclined portions 123, 123 of the worms 120′ coact with a tooth of the worm gears the same will be rotated a given distance, whereby the star wheels will transport the crowns a corresponding distance. The star wheel 58 may be either driven continuously from the shaft 53, or driven by the star wheel 62 through the intermediary of the metal caps engaged by both wheels. The shaft 98 is also actuated from the main shaft 53. For this purpose a bevel gear 125 is mounted upon the shaft 98 and meshes with a similar gear 126, keyed to a shaft 127, which is journaled in a bearing 128. Upon the shaft 127 is furthermore mounted a spur gear 129, meshing with a similar gear 130, the latter being fixedly attached to the shaft 53.

What I claim is:—

1. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for placing a disk of impervious binding material into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said sealing disk depositing means and said means which place the binding disk into the cap, and means for holding the sealing disk under pressure within the cap after the parts are assembled and while the binding material is hardening.

2. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for placing a disk of impervious binding material into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said sealing disk depositing means and said means which place the impervious binding disk into the cap, a rotary drum having a plurality of recesses into which the assembled closures are fed, and a plurality of spring pressed plungers for holding the sealing disks under pressure within the caps in said recesses while the binding material is hardening.

3. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for placing an impervious fusible binding material into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said sealing disk depositing means and said means which place the impervious binding material into the cap, and means for holding the sealing disk under pressure within the cap after the parts are assembled and while the binding material is hardening.

4. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for cutting disks from a strip of impervious binding material and forcing a disk into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said cutting means and sealing disk depositing means, and means for holding the sealing disk under pressure within the cap after the parts are assembled and while the binding material is hardening.

5. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for cutting disks from a strip of impervious binding material and forcing a disk into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said cutting means and sealing disk depositing means, a rotary drum having a plurality of recesses into which the assembled closures are fed, and a plurality of spring pressed plungers for holding the sealing disks under pressure within the caps in said recesses while the binding material is hardening.

6. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for cutting disks from a strip of impervious binding material and forcing a disk into the metallic cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means inserted between said cutting means and sealing disk depositing means, a rotary drum having a plurality of recesses into which the assembled closures are automatically fed, and a plurality of spring pressed plungers for holding the sealing disks under pressure within the caps in said recesses while the binding material is hardening.

7. In a machine for the manufacture of bottle closures of the cap variety, the combination with a rotary drum having a plurality of peripheral recesses, of means for feeding an assembled closure into each of said recesses, plungers slidably arranged in said drum in alinement with said recesses having fork shaped ends, radial arms pivoted to said drum corresponding in number to said plungers engaging the fork shaped ends of said plungers and projecting above the plane of the same, yielding connections between said plungers and radial arms, spring pressed pins engaging said radial arms for applying pressure to the closures in the recesses to unite the parts thereof, rollers carried by the free ends of

said arms, and a cam in the path of said rollers for forcing said plungers away from said recesses before they arrive opposite to said feeding means.

8. In a machine for the manufacture of bottle closures of the cap variety, the combination with a rotary drum having a plurality of peripheral recesses, of means for feeding an assembled closure into each of said recesses, plungers slidably arranged in said drum in alinement with said recesses having fork shaped ends, radial arms pivoted to said drum corresponding in number to said plungers engaging the fork shaped ends of said plungers and projecting above the plane of the same, yielding connections between said plungers and said arms, spring pressed pins engaging said radial arms for applying pressure to the closures in the recesses to unite the parts thereof, rollers carried by the free ends of said arms, and a stationary cam in the path of said rollers for forcing said plungers away from said recesses before they arrive opposite to said feeding means.

9. In a machine of the character set forth, in combination, means for inserting a cementing material in a cap, means for heating and fusing said material while in said cap, means for registering a sealing gasket with said cap, means for forcing said gasket into contact with said fused cementing material, and means for maintaining said contact until said cementing material is set.

Signed at New York, in the county of New York and State of New York this 18th day of May, A. D. 1911.

ALEX. BOGDÁNFFY.

Witnesses:

SIGMUND HERZOG,

S. BIRNBAUM.

1494

A. BOGDÁNFFY.

PROCESS OF MANUFACTURING BOTTLE CLOSURES.

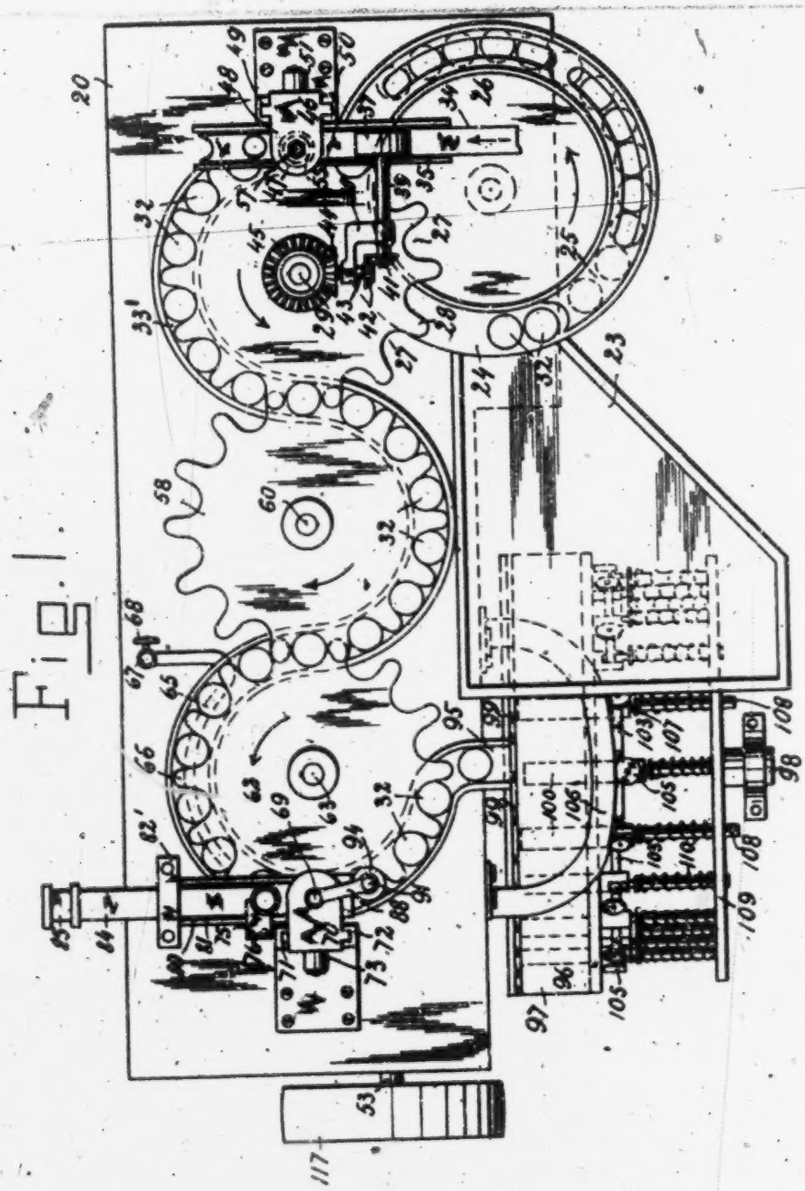
APPLICATION FILED SEPT. 9, 1911. RENEWED AUG. 7, 1912.

1,053,898.

Patented Feb. 18, 1913.

4 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

W. Klink

S. Birnbaum

INVENTOR

Alex Bogdánffy

by Sigmund Herzog

his ATTORNEY

BLANK

PAGE

1495

A. BOGDÁNFFY.

PROCESS OF MANUFACTURING BOTTLE CLOSURES.

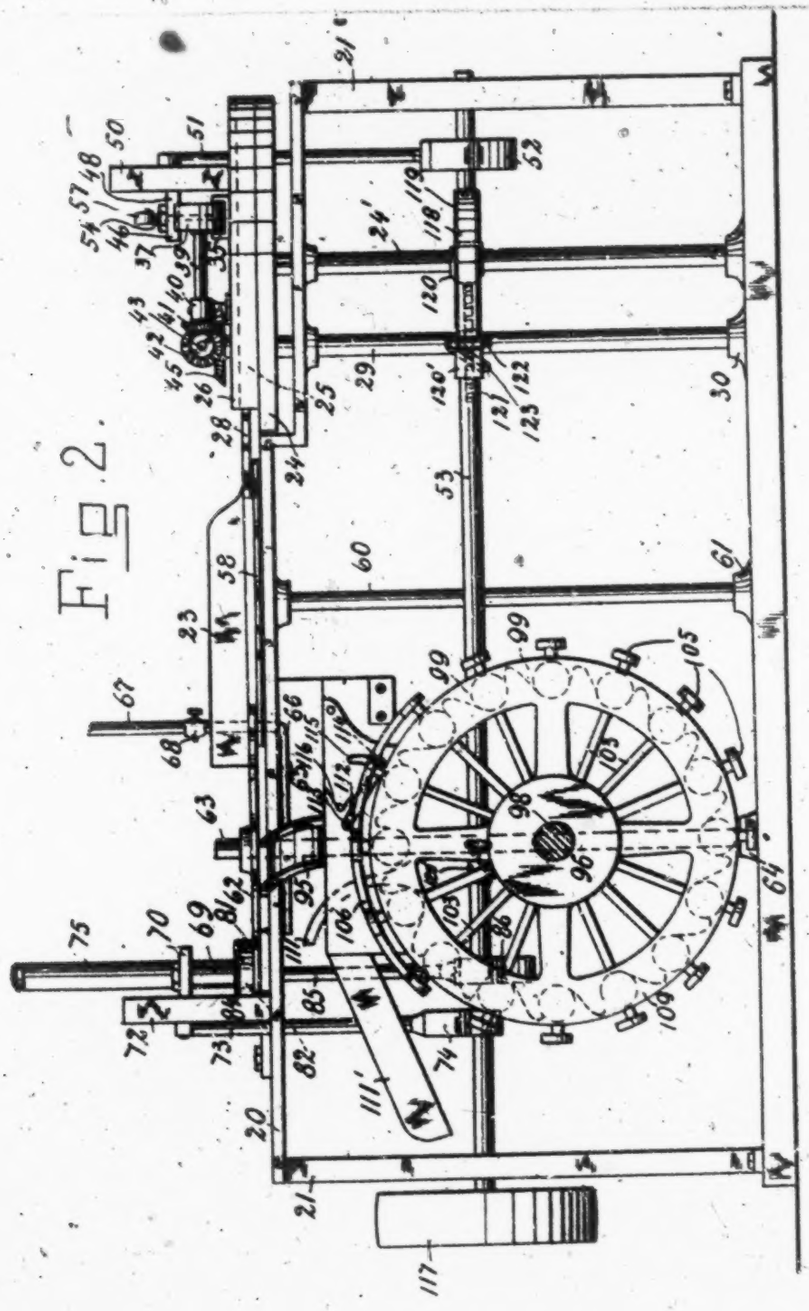
APPLICATION FILED SEPT. 9, 1911. RENEWED AUG. 7, 1912.

1,053,898.

Patented Feb. 18, 1913.

4 SHEETS—SHEET 2.

Fig 2.



WITNESSES

W. Klink

S. Birnbaum

INVENTOR

Alex Bogdánffy

by Sigmund Herzog

his ATTORNEY

BLANK

PAGE

1496

A. BOGDÁNFFY.

PROCESS OF MANUFACTURING BOTTLE CLOSURES.

APPLICATION FILED SEPT. 9, 1911. RENEWED AUG. 7, 1912.

1,053,898. Patented Feb. 18, 1913.

4 SHEETS—SHEET 3.

Fig. 3.

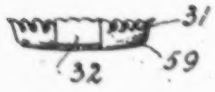


Fig. 4.

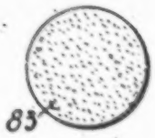


Fig. 5.



Fig. 6.



Fig. 7.

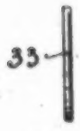


Fig. 8.

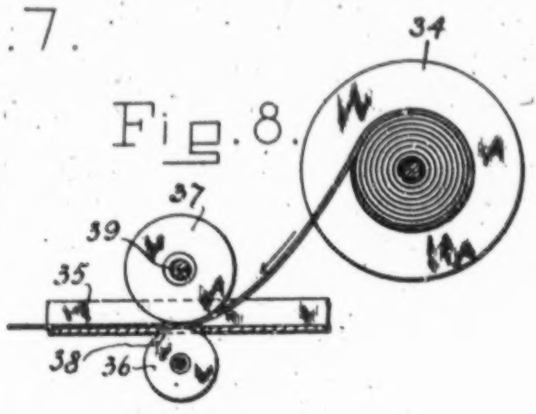


Fig. 9.

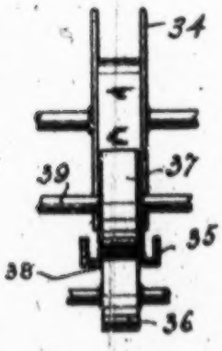


Fig. 10.

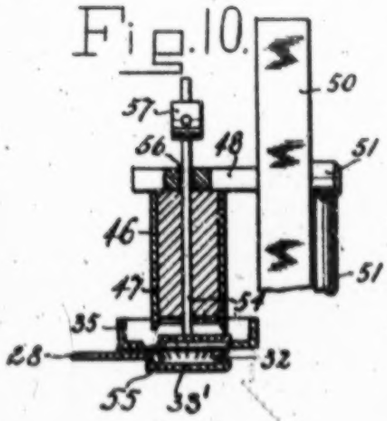
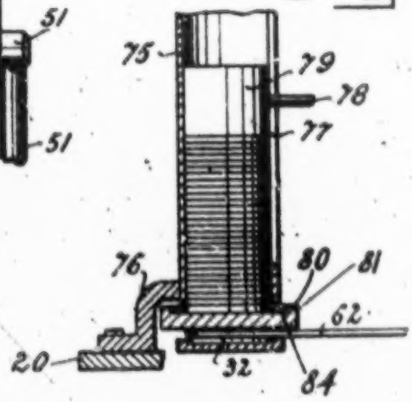


Fig. 11.



WITNESSES

S. Birnbaum
L. Klink.

INVENTOR

Alex Bogdánffy

BY

Sigmund Herzog
his ATTORNEY

BLANK

PAGE

1497

A. BOGDÁNFFY.

PROCESS OF MANUFACTURING BOTTLE CLOSURES.

APPLICATION FILED SEPT. 9, 1911. RENEWED AUG. 7, 1912.

1,053,898.

Patented Feb. 18, 1913.

4 SHEETS—SHEET 4.

Fig. 12.

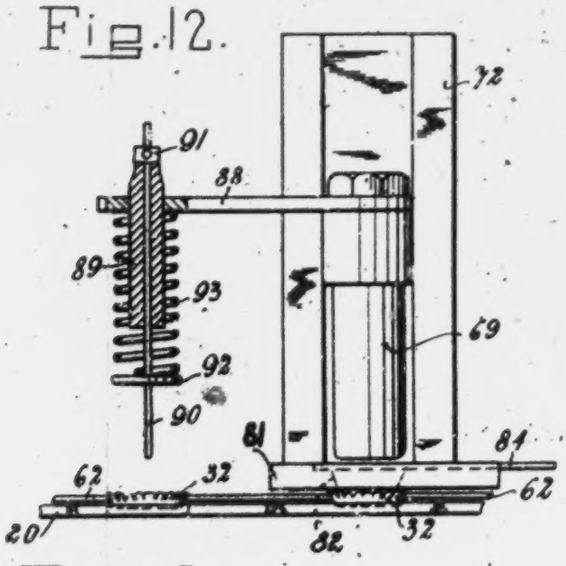


Fig. 13.

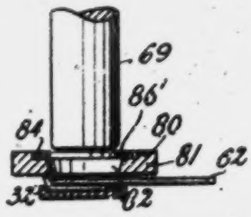


Fig. 14.

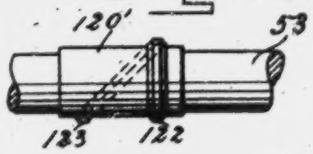


Fig. 15.

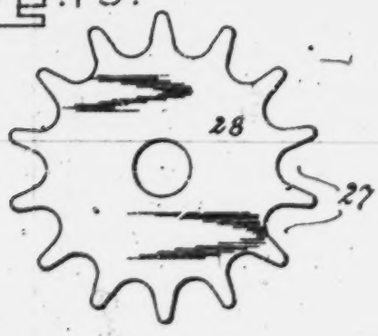


Fig. 16.

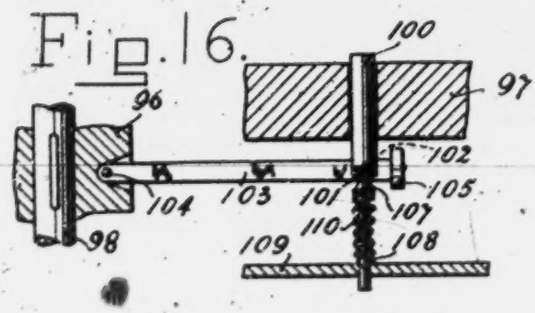
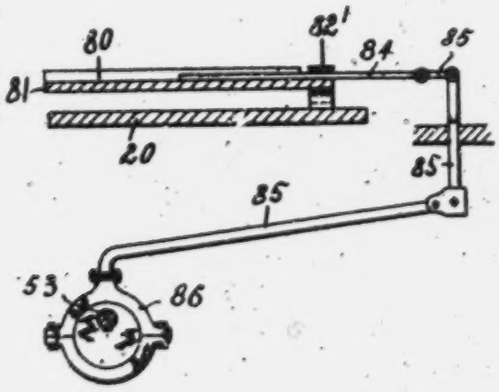


Fig. 17.



WITNESSES

W. Klink.

S. Bisnlaum

INVENTOR

Alex Bogdanffy

BY

Sigmund Herzog

his ATTORNEY

BLANK

PAGE

BLANK

PAGE

UNITED STATES PATENT OFFICE.

ALEXANDER BOGDÁNFFY, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

PROCESS OF MANUFACTURING BOTTLE-CLOSURES.

1,053,898. Specification of Letters Patent. Patented Feb. 18, 1913.

Original application filed May 27, 1911, Serial No. 629,871. Divided and this application filed September 8, 1911, Serial No. 648,502. Renewed August 7, 1912. Serial No. 713,942.

To all whom it may concern:

Be it known that I, ALEXANDER BOGDÁNFFY, a subject of the King of Hungary, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Processes of Manufacturing Bottle-Closures, of which the following is a specification, the same being a division of application Serial No. 629,871, filed May 27, 1911.

The present invention relates to a process for the manufacture of bottle closures of the class known as "crown cork sealing caps or closures." Closures of this type comprise usually three parts, that is a metallic cap or crown, having a corrugated flange to be locked to the exterior of the bottle neck, a sealing disk or packing of cork or the like, and a disk of impervious binding material interposed between the metallic cap and the cork disk. These caps have been manufactured heretofore in the following manner: The three parts mentioned are assembled and the closure, as a whole, is then subjected to heating action, whereby the interposed impervious binding material is softened or fused so that, when pressure is applied to the closure, the impervious binding medium will firmly unite the packing disk with the metallic cap or crown. This process of manufacture has, however, several defects, to wit: The packing disks are liable to be injured by the heating action, no matter whether they are of cork or of a composite type. If cork sealing disks are employed, they will lose to some degree their toughness, or in other words they will become brittle, whereby the sealing properties of the same will be impaired to a great degree. If, on the other hand, sealing disks of a composite type are used, they might be rendered entirely useless for the reason that they contain a fusible material, which is, of course, affected by the heat. Another defect of the process of manufacture hereinbefore mentioned consists in that, when the parts are assembled, the diameter of the metallic cap is slightly reduced so as to grip the sealing disk. When now, after the assembling, the closure is heated, the moisture and air between the members of the closure cannot escape. Moreover, when then the parts are subjected to heating action, the air will be expended and act as a cushion, as it were, when the closure is subjected to pressure, and thus prevent a firm union between the parts thereof.

The object of the present invention is to obviate these defects mentioned, and with this and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the process hereinafter fully described, and pointed out in the appended claim.

One of the many possible apparatus for carrying out the process forming the subject of the present application for Letters Patent is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a device constructed in accordance with the present invention; Fig. 2 is a front elevation thereof; Fig. 3 is a sectional view of a metallic cap inverted or in the position in which it passes to the machine ready to receive the other parts of the composite sealing closure; Fig. 4 is a plan view of the sealing disk of the closure; Fig. 5 is a front elevation thereof; Fig. 6 is a plan view of an impervious binding disk which is inserted into the metallic cap; Fig. 7 is a front elevation thereof; Fig. 8 is a sectional view of the means for feeding the strip of paper from which the binding disks are cut out; Fig. 9 is a front elevation of the device shown in Fig. 8; Fig. 10 is a vertical section taken through the means for cutting the strip of paper; Fig. 11 is a vertical section taken through the sealing disk holding means; Fig. 12 is a side elevation, partly in section, of the means for forcing the sealing disk into the metal cap; Fig. 13 is a sectional view of the means for conveying the sealing disk to the metallic cap; Fig. 14 is a detail view of a worm for intermittently rotating the transporting means of the device; Fig. 15 is a plan view of a transporting wheel; Fig. 16 is a detail of construction of the pressure applying means of the apparatus; and Fig. 17 is a side elevation of a further detail of construction.

In the drawings, the numeral 20 indicates a horizontal table, which is supported by legs or standards 21, the latter being attached in any suitable manner to the floor. Above

Page Tightly Bound

the plane of the table 20 is arranged a substantially horizontal support 23 onto which the metallic caps are placed in their inverted positions, to be passed manually to a continuously rotating carrying disk 24, which conveys the caps, one after the other, along a channel 25 in the direction of the arrow indicated in Fig. 1 of the drawings, which channel is formed between the said carrying disk 24 and a cover plate 26. This cover plate is attached to the table 20 in any suitable manner. The carrying disk 24 feeds the inverted caps or crowns one after the other to the recesses 27 of a star wheel 28, which is attached to a vertical shaft 29, journaled in the table 20 and in a bearing 30. To this shaft intermittent rotary motion is imparted in the direction of the arrow by means which will be hereinafter described. The star wheel 28 overlies partly the carrying disk 24, engages the flange portions 31 of the caps 32, and conveys them along a groove 33′ in the table 20 to rest directly beneath the means which cuts the impervious binding disk 33 from a strip of suitably prepared paper or other material, and places the disk into the inverted cap.

The paper strip, from which the disks 33 are cut, is wound upon a reel 34, which is suitably journaled in the frame of the machine, and from which the strip is conducted into a guide 35 to pass between the feeding rollers 36 and 37. The feeding roller 36 is journaled in the frame of the machine and projects through a slot 38 in the guide 35 above the lower plane of the latter, while the spindle 39 of the roller 37 is journaled in a bearing 40, and carries at its outer end a bevel gear 41, meshing with a similar gear 42 upon the shaft 43, upon the opposite end of which is mounted another bevel gear 44 in mesh with a similar gear 45, which latter is attached to the shaft 29 of the star wheel 28. It will be observed that the feeding rollers 36 and 37 will thus rotate intermittently, and advance the paper strip to the cutting means 46. The cutting means comprises a tubular cutter 47, secured in any suitable manner to an arm 48, which is slidably arranged in a vertical guideway 49 of a bracket 50, attached to the table 20. The arm 48 is pivotally engaged by a rod 51, which is fastened to the strap of an eccentric 52, the latter being mounted upon the main driving shaft 53 of the machine. The driving shaft is journaled in bearings, which are secured to or made integral with the standards or legs 21. As the paper disk is cut from the strip, it will be automatically forced, upon the upward movement of the cutter 47, by a stem 54 through a hole 55 in the guide 35 into the metallic cap. The stem 54 projects through an opening 56 of the arm 48 above the plane of said arm and carries upon its upper end a weight 57. When therefore the cutter 47 moves upward, the weight 57 will force the stem 54 downward and thereby the paper disk into the cap. After this, upon the further upward movement of the arm 48, the latter will engage the weight 57 and lift thus the stem 54 out of the hole 55 in the guide 35. The paper disk having been deposited in the metal cap, the latter will be transported by the wheel 28 within the reach of a star wheel 58, which rotates in a direction opposite to that of the star wheel 28 and lies in a plane below that of the wheel 28, engaging thus the heads 59 of the metal caps 32. The star wheel 58 is mounted upon a shaft 60, which is suitably journaled in the frame and in a bearing 61. The caps and paper disks are by the wheel 58 brought within the reach of a third star wheel 62. This star wheel overlies partly the wheel 58 and engages the metal caps at their flange portions 31, transporting the same intermittently to the means which force the sealing disks into the caps. The star wheel 62 is attached to a shaft 63, mounted in the frame of the machine and in a bearing 64. This shaft moves also intermittently, and is actuated also from the main driving shaft 53 in a manner hereinafter to be specified. While being transported by the wheel 62, the caps and the binding disks therein are heated by a suitable heating means, for instance a gas heater 65. This heater comprises a perforated tubular member 66, connected with the gas supply pipe 67, the communication being controlled by a valve 68. This heater is, preferably, arranged below the table 20. The heat is transmitted to the binding disks by the metal caps directly in contact with the table. The binding material is thus fused or softened for the purpose of uniting the sealing disk to the cap, and for other well known purposes. After heating, the caps are transported by the wheel 62 to an assembling plunger 69, attached to an arm 70, which is slidably arranged in a vertical guide 71 of a bracket 72. The arm 70 is pivotally connected with a rod 73, which is fastened to the strap of an eccentric 74, the latter being keyed to the main driving shaft 53. The sealing disks are placed into a substantially vertical tube 75, which is attached to the table 20 by means of a bracket 76 or otherwise, and is provided with a longitudinal slot 77 through which a finger piece 78 of a weight 79 protrudes, said weight being placed on the sealing disks, and serves to feed the said disks into a guideway 80 of a plate member 81, which is attached to the table by a bracket 82′ in a plane above the plane of the star wheel 62. The plate 81 is provided with an aperture 82 in alinement with the plunger 69. This aperture tapers toward the plane of the wheel 62, its upper diameter being larger than the diameter of a sealing disk 83, and the diameter at its

lower end being somewhat smaller than that of a sealing disk. The purpose of this arrangement will be explained presently. The sealing disks are conveyed in the guideway 80 from below the tubular member 75 to the aperture 82 by a reciprocatable conveyer 84, which is slidably arranged in the guideway 80, and connected by a plurality of links and rods 85, 85 with the strap of an eccentric 86, which is keyed to the main driving shaft 53 of the machine. The conveyer 84 is provided with a recess 86', which engages the sealing disk in transferring the same to the aperture 82. Obviously the angular relation of the eccentrics 74 and 86 must be such that when the plunger 69 is lifted, the conveyer 84 will move inward and transfer thereby a sealing disk within the reach of the plunger 69, which, in its downward movement, will force the cork disk through the aperture 82 into the metal cap. It should be noted that since the diameter of the lower end of the aperture 82 is smaller than that of the sealing disk, the latter will be compressed to some extent and, when forced into the cap, will expand and be held thus firmly in the cap.

As it happens sometimes that one or the other of the recesses in the star wheel 62 does not contain a metal cap, it becomes necessary to eject the sealing disk from that recess after it has passed the plunger 69. For this purpose the plunger 69 carries a bracket 88, to which a downwardly extending tubular member 89 is attached, in which is slidably arranged a spindle 90, provided upon its upper end with a stop 91 and near to its lower end with a disk 92. Against this disk and the bracket 88 bears a spring 93, tending to force the spindle 90 downward into the recesses of the star wheel 62. The distance between the longitudinal axes of the plunger 69 and the spindle 90 is equal to the distance between two neighboring recesses in the star wheel 62. When therefore the plunger 69 is forced downward to press a sealing disk into the metal cap beneath it, the spindle 90 will be forced into the neighboring recess of the star wheel. If an assembled crown cork is in this recess, the spring 93 will be compressed by the upward movement of the spindle 90. If, however, only a sealing disk is seated in the recess, the spindle 90 will force the same through an opening 94 in the table into a receptacle below, said opening, for the reason that the tension of the spring 93 is greater than the resistance offered by the sealing disk in the recess.

The assembled crowns slide down an inclined passage 95 to the uniting head 96. This head comprises a rotary drum 97, keyed to a shaft 98, which is continuously driven from the main driving shaft 53. The drum is provided with a plurality of peripheral recesses 99, which are adapted to receive, one after the other, assembled crown corks from the passage 95. Plungers 100 are slidably arranged in the drum in alinement with the recesses, said plungers being located parallel with the longitudinal axis of the drum, and provided at their outer forked ends each with a pin 101, which engages slots 102 in radial arms 103, the inner ends of which are pivoted at 104 to the hub of the drum, while their upper free ends carry rollers 105, which are adapted to coact with a cam 106, attached to the frame of the machine. The arms 103 are engaged by the pointed ends 107 of spring pressed pins 108, which are slidably mounted on a ring 109, attached to the shaft 98. The cam 106 is arranged in the path of the rollers 105, whereby, as the drum 97 rotates, the plungers 100 will be forced against the action of the springs 110 upon the pins 108 out of the recesses 99 in the drum before they arrive opposite to the passage 95. When a recess arrives at this point, a crown cork will slide into the same, and after the corresponding roller 105 is disengaged from the cam, the spring 110 will force the plunger against the assembled crown cork, placing thereby the parts of the closure under compression, and holding it in this condition until the closure makes very nearly a full revolution around the shaft 98, when the roller of the plunger again arrives at the cam 106, whereby the plunger is disengaged from the closure, allowing the closure to be guided by a projection 111 into a chute 111'. It is obvious that the binding disk in the closure is still in its fused or softened condition when arriving in a recess of the drum 97, so that this binding medium, due to the pressure, will firmly unite the parts of the closure, the binding medium being partly or wholly hardened when the closure is discharged into the chute 111'. It is to be noted that an intimate union is formed between the sealing disk and the metal cap as there is no air between the said two parts to prevent such union. The sealing disk, on the other hand, is in its original tough condition, as it has not been subjected to the influence of the heating means upon the machine. A tongue 112 is pivoted at 113 to a stationary part of the frame, its free end being provided with a pin 114, engaging an arc-shaped slot 115 in the frame. A spring 116 forces the tongue 112 into contact with the drum, so that closures, which are not properly seated in their recesses, will be forced into the same before the plunger engages them.

Motion is imparted to the entire mechanism through the intermediary of a pulley 117, which is keyed to the main driving shaft 53. The shaft 24' of the continuously

rotating disk 24 is driven by a belt 118, running over pulleys 119 and 120, attached to the shafts 24′ and 53, respectively. The shafts 29 and 63 are driven by worms 120′, 120′ upon the main driving shaft 53, engaging worm gears 121, 121 upon the shafts 29 and 63. The worms 120′ have straight portions 122, and while these are engaging the worm gears 121, 121, the latter are at rest. When the inclined portions 123 of the worms 120′ coact with a tooth of the worm gears, the same will be rotated a given distance, whereby the star wheels will transport the crowns a corresponding distance. The star wheel 58 may be either driven continuously from the shaft 53, or driven by the star wheel 62 through the intermediary of the metal caps engaged by both wheels. The shaft 98 is rotated also from the main shaft 53, the connection between these two shafts has, however, not been shown, as it would complicate too much the drawing.

What I claim is:—

In a process for the manufacture of bottle closures of the cap variety, which consists, first, in placing a fusible binding medium into the metallic cap, second, heating the metallic cap and binding medium for properly fusing the latter, third, depositing a sealing disk into the cap on top of the fused binding medium, and, fourth, subjecting the assembled closure to pressure while the binding material is hardening.

Signed at New York, in the county of New York and State of New York, this 28th day of July, A. D. 1911.

ALEX. BOGDÁNFFY.

Witnesses:

SIGMUND HERZOG,

S. BIRNBAUM.

BLANK

PAGE

1502

(No Model.)

W. PAINTER.

BOTTLE SEALING DEVICE.

No. 468,226. Patented Feb. 2, 1892.

Fig. 2.

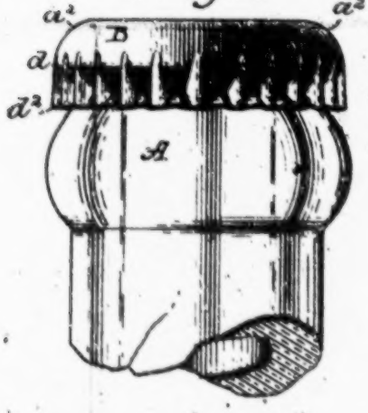


Fig. 1.

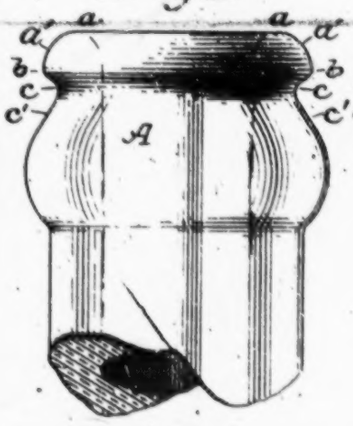


Fig. 3.

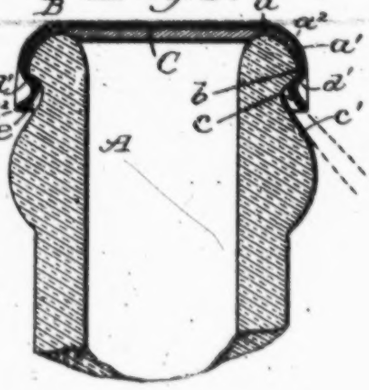


Fig. 4

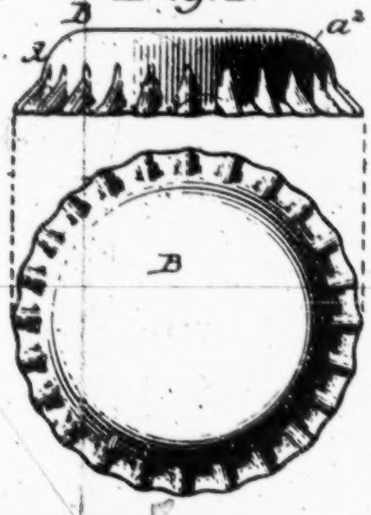


Fig. 8.

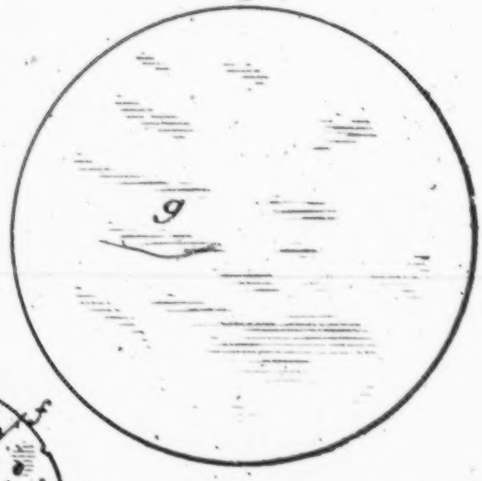


Fig. 6.

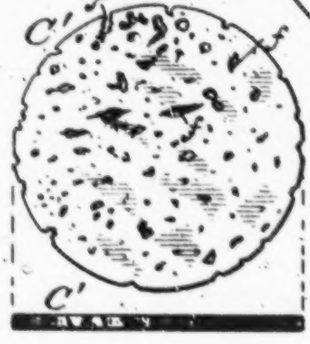


Fig. 5.



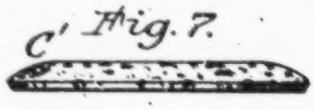
B' Fig. 9.



Fig. 10.



C' Fig. 7.



Attest:
Philip F. Farmer.
Howell Battle

Inventor:
William Painter
By Munn & Co. Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND.

BOTTLE-SEALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 468,226, dated February 2, 1892.

Application filed May 19, 1891. Serial No. 393,293. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PAINTER, of the city of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Bottle-Sealing Devices; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of the several features of my invention.

My present invention pertains to the sealing of bottles by the use of compressible packing-disks and metallic caps, which have flanges bent into reliable locking engagement with annular locking-shoulders on the heads of bottles, while the packing-disk is in each case under heavy compression and in enveloping contact with the lip of the bottle.

In order that the status of my present improvements may be properly defined with respect of novelty and utility, I deem it proper to briefly review the prior art in this special connection. So far as my knowledge extends, I am the first to seal bottles by means of sealing-disks each compressed into close solid contact with the lip of the bottle and maintained in that condition by means of a flanged metallic sealing-cap, the flange of which is bent or crimped into locking contact (while the disk is under pressure) with an appropriate annular locking-shoulder on the head of the bottle, as well as the first to devise methods and means by which in the use of such caps and disks liquids can be bottled under even the highest gaseous pressures employed in this art. Disclosures of my several prior inventions in this line have been made by me in certain of my applications for patents heretofore filed. (See Serial Nos. 323,314 and 355,603.)

Inasmuch as the application of my sealing-caps involves powerful mechanism for compressing the disks and for bending or crimping the flanges of the caps into locking contact with bottles, it follows that considerable manual force must be applied for detaching the caps from the bottles, and therefore in the early stages of my invention the use of loops of some kind or of equivalent holes in the tops of the caps was deemed essential, and the caps had wide or deep pendent flanges and they contained sealing-disks of considerable bulk or thickness. During further progressive stages of my invention I demonstrated the economic importance of using thin disks, and these in some forms preclude the use of a cap having either a hole in its top or even some forms of inserted loops. These contingencies led, after much devising and experimenting, to the production of a cap without a loop or a hole in its top, a thinner disk, and consequently narrower flanges, thus substantially reducing the cost of the sealing device as a whole without decreasing, but in fact increasing, the efficiency of the applied cap, and also securing higher sealing efficiency by the use of a less expensive disk. The flange of the cap being narrow and its locking or bent portions being between the edge of the flange and the top of the cap, and the said edge being practically intact or continuous the cap could be applied to a bottle with a tenacity at least equal to, if not greater than, the caps having wider and consequently more flexible flanges, and hence as much or more manual force was required for detaching said caps than with those of the said previous forms. These improved caps having in themselves no special provision—such as loops or openings in their tops—for detaching them from bottles led to my further devising a novel method of their combination with the bottle, in accordance with which the pendent edge of the flange below the bent portion is so far projected from the adjacent surface of the bottle-head as to afford an engaging-shoulder, to which a bottle-opener could be readily applied; but the required manual force to remove the cap was so great that openers of special form were a necessity, and these were operated by leverage and were fulcrumed either upon the top surface of the cap or upon the outwardly-rounded surface of the bottle-head below the cap. The disadvantages to consumers incident to a positive requirement for the use of specially-constructed openers are obvious, and to avoid them I have now so devised my loopless and close-topped caps and have so organized a combination thereof with the bottles that the caps can be almost as readily detached by the use of a knife, a screw-driver, a nail, an ice-pick, or any usually and readily available pointed instrument as if a special opener were used, the latter be-

ing, of course, always preferable when bottles are required to be opened rapidly. My present caps in their best forms have outwardly-flared edges, and the heads of the bottles below their locking-shoulders are of such form and diametrical dimensions that when the cap is locked upon the bottle there is ample space below and at the rear of the flange to admit of the free insertion of any pointed or thin-edged device capable of serving as a bottle-opener by prying the flange outwardly from the locking-rib at several points and thus releasing its hold thereon. The projected edge of the cap so applied also enables the use therewith of special bottle-openers operating as levers, as with my prior caps. When a special bottle-opener is employed, quite heavy detaching force is necessary, because of the practically simultaneous detachment of the cap from the shoulder on the bottle at many points of locking contact; but in operating within the space at the rear of the pendent edge of the flange, as with a knife-blade, for instance, the detachment is gradually effected at each of the points of locking contact, and hence but little manual force is required.

Now with relation to sealing-disks it is to be understood that at the outset I was well aware that cork was the most desirable material; but in view of the high cost of cork and of the presence therein of holes or pits and the apparent necessity that cork disks should be of considerable thickness prompted the devising by me of various substitutes for cork, some of the best of which have been disclosed in my aforesaid prior applications. Some of said disks were essentially quite thick, and hence I first used therewith a flat-topped cap and a bottle having a sharp-edged lip, which was embedded in the disk. With the thinner disks next used with narrow flanged caps such a deep embedding of the lip as was practicable and desirable with the thick disks was rendered objectionable, and hence I used a flat-topped cap and a bottle having a flat-edged lip. With both the thickest and the thinner disks there was a more or less, but far from extensive, packing contact with the annular surfaces inside and outside of the bottle-lip. I have now provided for a specially extensive area of packing contact by using a bottle having a lip well rounded on its outside and a thin disk capable of enveloping and lying in close conformity with the said outer rounded surface. I am thus enabled to secure very satisfactory results with very thin composite compressible disks and caps of a minimum size and weight, because a large proportion of the area of the disk is interposed between coincident surfaces of the cap and the outer rounded surface of the bottle-lip, and said disk is maintained under very high compression. At this stage of my invention I realized that inasmuch as such very thin disks of the composite types (linoleum, felt-paper, with various protecting-coatings, &c.) could be successfully used it would warrant the use of cork, even of the most expensive grades, because said sealing-disks may be normally not thicker than, say, one-sixteenth of an inch. While pursuing this line of experiment I made what may be termed a "paradoxical discovery"—viz., that with the extensive areas of contact and compression now provided by me and with the attendant possibility of using extremely thin disks a perfect gas and liquid sealing effect could be secured and practically maintained for an indefinite time by the use of disks composed of the cheap and ordinary grades of cork, which are well known to contain numerous holes and pits and also streaks of matter quite unlike the main or effective portions of the cork-wood. It is to be understood, however, to accomplish this result that the cork-wood must not only be peculiarly cut, but also subjected to special mechanical treatment. In this connection it will be remembered that in forming ordinary cylindrical or tapered bottle-corks the wood (or bark) is so cut that in each cork the lines of pits or holes are crosswise or at right angles to the axis of the cork, so that when the latter is inserted in the neck of a bottle the contact-surface of the glass closes the entrances to said holes or pits, and therefore their presence does not materially impair the sealing capacity of the cork. Now in cutting my disks from the wood special care is taken to have said lines of perforations or holes or pits parallel with the axis of the disk, and although the disks may be no thicker than one-sixteenth of an inch and be in fact reticulated or perforated they are nevertheless reliable sealing-disks as used by me, because the holes or perforations are so far surrounded by masses of true cork that when the disks are heavily compressed the cork around each hole is rendered impermeable and the ends of each hole are tightly closed, respectively, by the coincident inner surfaces of the rounded topped cap and the outwardly-rounded bottle-lip.

Now as to the necessity for mechanical treatment of the cork disks, I will state that cork-wood (especially the cheaper kind) contains numerous small masses of hard, solid, and almost flinty matter wholly unlike that of the true cork-wood, and it is quite difficult to get a disk which does not contain several of these hard spots. Such hard spots will not become softened by soaking in hot water or steaming, as is usually employed with corks. If such disks be used for sealing, the heavy pressures incident to the application of the caps are insufficient for crushing said hard masses of matter, and their presence would be sometimes indicated by well-developed indentations in the tops of the caps (notwithstanding they are composed of hard sheet metal) with a resultant liability of leakage. For obviating said difficulty I discovered that I must subject the cork disks to a crushing pressure, which so flattens, crushes, or disintegrates said hard masses that they cannot

operate obstructively in the sealing operation. It is to be understood that said disks and the method or process of preparing them will be made the subject of a separate application for Letters Patent. (See Serial No. 417,285, filed January 7, 1892.) It is obvious that in the use of such cork disks the liquid contents of a bottle cannot be excluded by the disks from contact with portions of the cap, and therefore the interior surface of the caps is coated with an inodorous, tasteless, and practically insoluble protecting material.

For more particularly describing my invention I will refer to the accompanying drawings, and after a description thereof the features deemed novel will be specified in the several clauses of claim hereunto annexed.

Referring to the drawings, Figure 1, in side view, illustrates a bottle-head adapted for use in combination with my cap and a sealing-disk. Figs. 2 and 3 respectively illustrate in side view and section a bottle-head with one of my caps and a sealing-disk applied thereto. Fig. 4, in side and top views, illustrates a cap prior to its application to a bottle. Fig. 5, in top and edge views, illustrates a sealing-disk of a composite character in its normal form. Fig. 6, in top and edge views, illustrates a sealing-disk in its normal condition composed of ordinary cork and fairly indicating the open or porous character of such disks as have been successfully used by me with my caps in maintaining gas or air tight closure even under much higher pressures than are ever needed in bottling. Fig. 7 illustrates a cork disk in the form which it is made to assume within the cap and after it has been subjected to heavy pressure for reducing its hard spots. Figs. 8, 9, and 10 respectively illustrate a sheet-metal blank from which the cap is formed, the shape first developed therefrom and the final shape, these being in section with the sealing-disks therein.

Commencing with the bottle-head A, (shown in Fig. 1,) it is to be understood that it differs from such as have been heretofore devised by me in the contour of its lip and of the packing-surface outside of and below said lip above the locking-shoulder, as well as below said shoulder. The lip a is well rounded instead of being quite angular, sharp, or flattened, as in different forms of my prior bottles, and the exterior packing-surface a' below the lip is also well rounded instead of being, as before, quite straight and inclined. The locking-shoulder b is substantially as in some of my prior bottles; but from the recess c below the shoulder downwardly, as at c', the surface of the head is straight or inclined for a short distance instead of being quite abruptly rounded outwardly, as in my prior forms. These differences in form are each of importance in the attainment of some of the specific results now sought by me, as will be hereinafter made apparent.

The metal cap B and its disk C or C′ will first be described in connection with those features which specially relate to their combination with a bottle having a locking-shoulder on its head and constructed, as described, below said shoulder, and it is now to be understood that after a bottle has been filled and the cap, with its disk, has been placed thereon heavy pressure is then applied to the cap and disk, and then the flaring edge of the flange d of the cap is so bent downwardly and inwardly that an annular portion of said flange, as at d', is forced beneath and into reliable engagement with said locking-shoulder; but instead of the lower inside edge of the flange lying closely against the surface of the glass, as heretofore provided for by me, the said edge, by reason of its being now beveled outwardly and also by reason of the shape and dimensions of the bottle-head adjacent to said edge, stands off from the surface of the glass, so as to thereby afford a free annular space at e between the lower portion of the flange and the adjacent surface of the head, and a free entrance to said space is secured for the ready insertion of any sharp or pointed instrument, as indicated in dotted lines in Fig. 3, for service as a bottle-opener by prying the flange of the cap outwardly from the locking-shoulder, as previously described. It will now be seen, although the cap would be well locked and although this bottle-head need be neither unduly large in diameter nor in length, that the flange of the cap may be of a lesser diameter than that of the rounded portion of the head, notwithstanding the liberal annular space e at the rear of the flange. As the result of this peculiar and novel combination of the cap and bottle no special bottle-opener is needed, although the edge d^2 of the cap-flange is so well projected that special bottle-openers may be used, if desired. Any form of sealing-cap applied to and in combination with a bottle-head which is recessed below the locking-shoulder and below and at the rear of the flange and which affords the freely-accessible annular space e will involve this portion of my invention.

Now, more specifically describing the sealing-cap B, as shown in Fig. 4 and as it appears prior to its application to a bottle, it differs from any of my prior caps in that at the junction of the flange and top it is well rounded, as at a^2, so that its corresponding inner surface will correspond with or conform to the rounded packing-surface a' on the bottle-head, this being an essential feature when thin sealing-disks C or C′ are used. As these disks are not or need not normally be more than one-sixteenth of an inch in thickness, and as they are generally reduced to at least one-fourth of that thickness by the requisite sealing compression, it is obvious that the surfaces between which the disk is compressed should be thoroughly coincident, or at least in substantial conformity. With the thick or heavy disks as heretofore used by me and with caps rounded to a minimum

or to any degree at the junction of the flange and top and whether the bottle-lips were flat or sharp, the main point sought was the embedding of the lip in the disk. A comparison of my caps, disks, and bottles and their combination as now disclosed with my prior caps, disks, and bottles and their combination as heretofore devised and disclosed by me, will enable it to be seen that my present improvements involve novel principles of substantial value. With a sharp-lipped bottle and the flat-topped cap a disk as now used by me would be inevitably cut on the line of compression and the sealing effect defeated; but with the outwardly-rounded lip and the extended area of packing contact and the correspondingly-formed cap no cutting action is possible. The thick disks before used and applied by me were essentially impermeable to liquid, and the sealing effect was due, mainly, to the packing contact between the impermeable surface of the disk and the lip of the bottle; but with the thin disks and the rounded coincident surfaces of the bottle-head and the cap permeability of the disk is a matter of no consequence so far as relates to the sealing effect, as will now be made fully apparent.

Referring to Figs. 6 and 7, it is to be understood that the sealing-disk C′ is composed of a thin slice of cork-wood of a low ordinary grade and full of pits or irregularly-shaped holes *f*, which extend completely through the disk, so that when such a disk is held up to the light and close to one's eye it will but little obstruct the vision. In some cases the partitions between the original holes are broken away, forming large ragged holes; but whether the holes are large or small all but those at the extreme edge of the disk are surrounded or bounded by serviceable cork, and hence when the disk is compressed between the surfaces a^2 of the cap and $a\,a'$ of the bottle-lip some of the small holes will be quite closed in or up by the compression of the adjacent cork, and such as are not so closed are tightly walled on one side by glass and on the other side by metal, and the several portions of integrally-communicating cork, although of extremely limited bulk, perform their packing functions more fully than when in larger masses and in the ordinary forms of bottle-corks. It will be seen, however, that, while it is essential in an ordinary bottle-cork that the lines of holes or pits in the cork-wood should be at right angles to the axis of the cork, said holes or lines of holes must be parallel with the axis of a sealing-disk, as before described.

It is obvious that with a thin disk permeable except at its compressed portion it is important that the metal cap should be so coated on its inner side that no metallic taste can be imparted to the liquid contents of a bottle, and for this purpose I apply to the interior of the caps a surfacing of inodorous, tasteless, and insoluble liquid-proof material. It is to be understood that this resistant or non-corrodible coating need only be a very thin film, and I secure the best results by the use of a fusible adhesive material which is tasteless and odorless—such as thin shellac varnish—applied to the interior of the caps and well dried, although a varnish composed of Egyptian asphaltum and aromatic benzole affords quite satisfactory results.

The combination of a metallic sealing-cap coated inside with a protecting film and a permeable or porous sealing-disk is a valuable portion of my invention, and especially if the sealing-disk be composed of cork.

The very hard spots or masses of various sizes and forms found in all ordinary cork will, as hereinbefore indicated, render thin cork disks more or less defective as compressed sealing-disks whenever such hard matter is located in that annular portion of a disk which is compressed between a cap and the packing-surface of a bottle. I therefore, prior to the application of the disks to bottles, free the disks from said hard spots. In other words, I subject them to a heavy pressure, which breaks or crushes and disintegrates the normally hard masses, so that they cannot operate obstructively during the compression of the disk between the bottle and the cap. This crushing operation may be performed prior to the insertion of the disks into the caps; but it is best accomplished at the time the disk is forced into the cap, the latter having had its interior already coated with a film of well-dried shellac, and then heated sufficiently to melt the shellac and render it adhesive, it being always too insufficient in quantity to cause it to flow and to fill the holes or pits in the cork, as will now be described.

Referring to Figs. 4, 6, 7, 8, 9, and 10, it is to be understood that the cap B is developed from a thin tinned iron disk *g*, Fig. 8, which is first struck up and formed into the shape shown in B′, Fig. 9. The flange *d* of this cap B′ is flared to a greater extent than in the finished cap B, as will be seen upon a comparison of Figs. 9 and 10. A cork disk as received from the cork-cutting machine is placed in the cap B′, previously coated inside with shellac and well heated, and then subjected to heavy crushing pressure in suitable dies, and the edge of the flange is compressed, thereby flattening the inner lower portions of the corrugations and slightly reducing the diameter of the flange at and near its edge. Under this operation the hard spots in the cork are not only crushed, but the cork disk is developed into a concavo-convex form, and it is also well confined in the cap by the melted shellac.

The cap B, having the rounded edge at its top, is free from liability of displacement or partial loosening under such edgewise blows on the cap as are incident to handling filled bottles, and said rounding of the top edge also prevents the metal from being lifted at said

edge out of packing contact, even if the center of the cap should be lifted or sprung outwardly under specially powerful gaseous pressure, and therefore it is to be understood that the well-rounded top is an important feature of novelty, but that with respect of its corrugations it is substantially in accordance with my previous disclosures; but in some of my prior caps the edge of the flange was flattened or flared for the sole purpose of causing said edge to lie closely in contact with the surface of a bottle-head rounded outwardly immediately below the locking-shoulder, whereas in my present combination said flattened edge is for an exactly opposite purpose, or, in other words, so as to locate it remotely from the adjacent surface of the bottle-head, which is straight and inclined below the locking-shoulder for a suitable distance, so as to afford the specially useful annular space below and at the rear of the lower portion of the flange. It will also be readily understood that the form and character of the corrugations are immaterial to my present invention, inasmuch as they may be long, short, large, small, straight, or spiralled, because in either case the flanges are to be always bent or crimped into locking contact with the annular shoulder on the bottle-head in such a manner as to afford the annular space *e*, this being wholly independent of the corrugations.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a bottle having a head provided with an annular locking-shoulder adjacent to its lip and a straight or inclined surface below the recess beneath said shoulder, of a metallic sealing-cap containing a sealing-disk and having a flange which is bent or crimped into locking contact with said shoulder above the edge of the flange, the said edge being located remotely from the adjacent surface of the bottle-head to afford between the lower portion of the flange and the adjacent surface of the bottle-head an annular space which is freely accessible to any pointed instrument applied for detaching the cap, substantially as described.

2. The combination, with a bottle having a head provided with an annular locking-shoulder adjacent to its lip and a straight or inclined surface below the recess beneath said shoulder, of a metallic sealing-cap containing a sealing-disk, and having a flaring-edged flange which is bent or crimped into locking contact with said shoulder above its flared edge, the latter being located remotely from the adjacent surface of the bottle-head to afford between the lower portion of the flange and the adjacent surface of the bottle-head an annular space which is freely accessible to any pointed instrument applied for detaching the cap, substantially as described.

3. The combination, with a bottle having on its head and between its lip and neck an annular locking-shoulder and a rounded packing-surface above and extending to the lip from said shoulder, of a metallic cap containing a thin concavo-convex heavily-compressed sealing-disk and having a top which is rounded in conformity with the packing-surface on the bottle-head and has a flange which is bent or crimped into locking contact with said shoulder, substantially as described.

4. A metallic flanged sealing-cap adapted to receive the head of a bottle and containing a concavo-convex sealing-disk and an interposed film of inodorous and tasteless adhesive matter which not only secures reliable initial union of the cap and disk, but also protects the interior surface of the cap against corrosion by liquids permeating the disk, and also prevents metallic tainting of the contents of a bottle sealed by means of said cap and disk, substantially as described.

WILLIAM PAINTER.

Witnesses:
T. R. ALEXANDER,
ORRIN C. PAINTER.

1508

R. G. CLARK.

BOTTLE CAP ASSEMBLING MACHINE.

APPLICATION FILED AUG. 20, 1913.

1,134,031.

Patented Mar. 30, 1915.

6 SHEETS—SHEET 1.

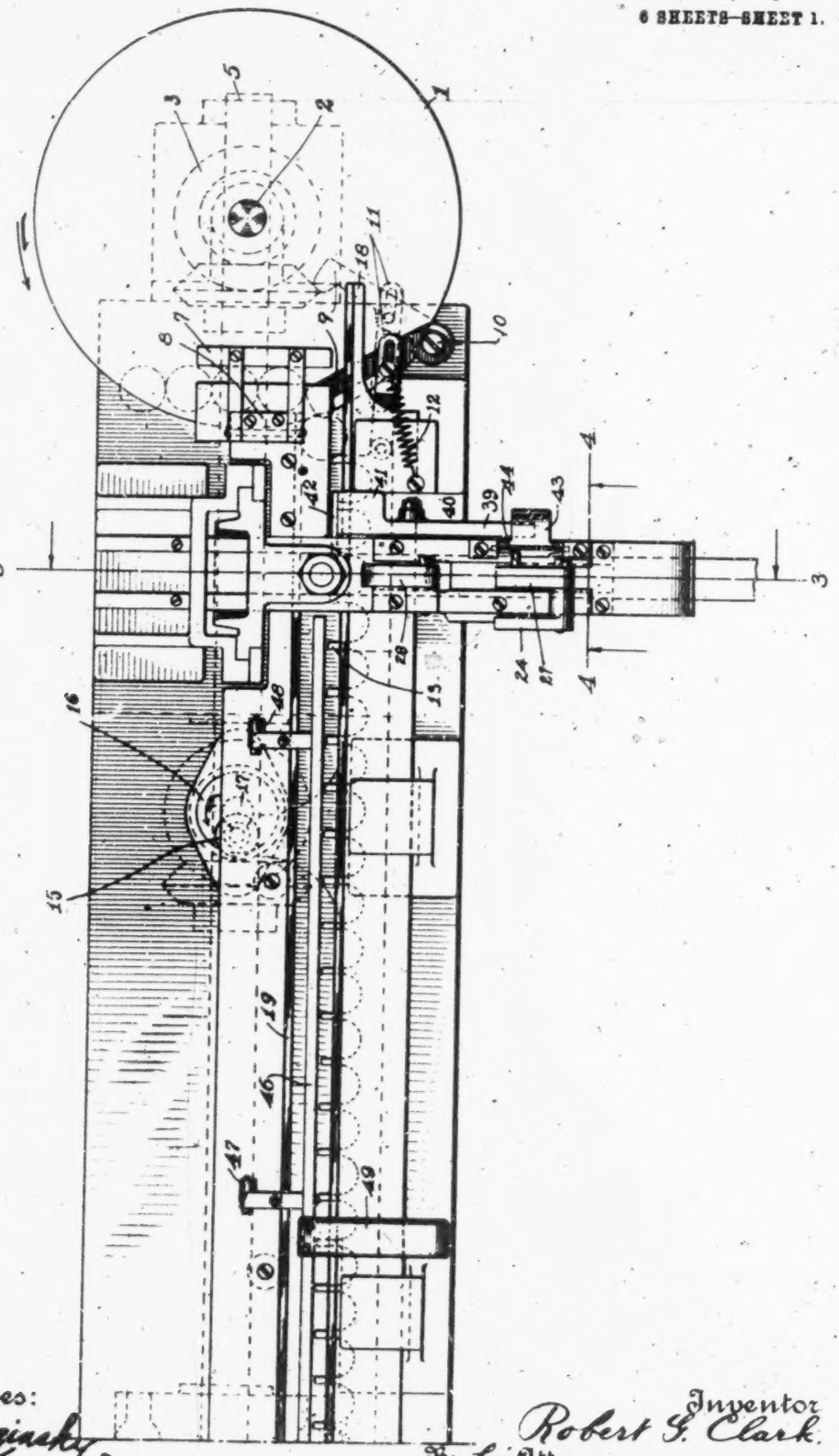


Fig. 1

Witnesses:

A. Rojinsky

E. L. Thurston

Inventor

Robert G. Clark.

By his Attorney

Lewis J. Doolittle

BLANK

PAGE

1509

R. G. CLARK.

BOTTLE CAP ASSEMBLING MACHINE.

APPLICATION FILED AUG. 20, 1913.

1,134,031.

Patented Mar. 30, 1915.

6 SHEETS—SHEET 2.

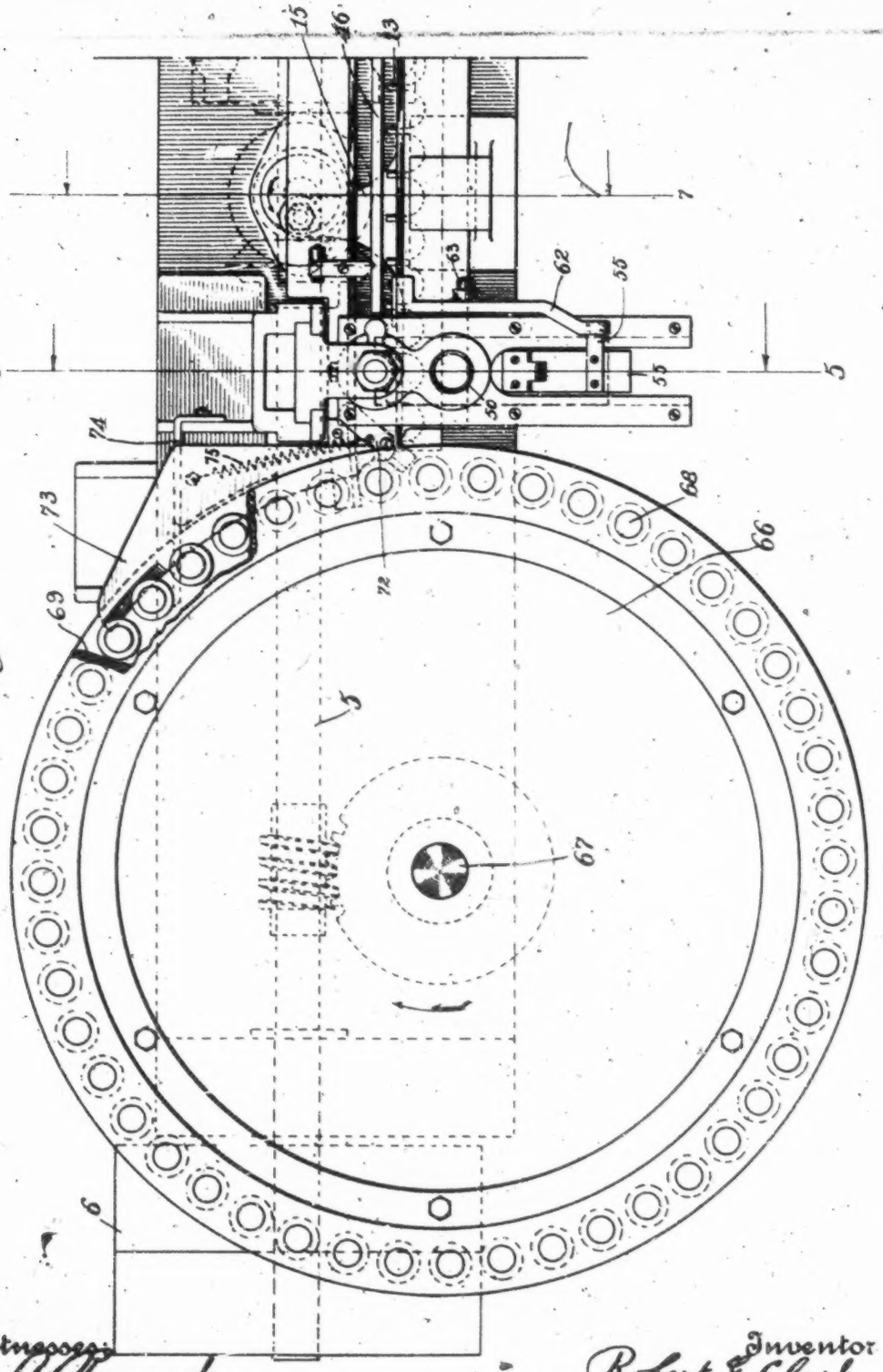


Fig. 2

Witnesses:

Inventor
Robert G. Clark
By his Attorney
Lewis J. Woolitch

BLANK

PAGE

1510

R. G. CLARK.

BOTTLE CAP ASSEMBLING MACHINE.

APPLICATION FILED AUG. 20, 1913.

1,134,031.

Patented Mar. 30, 1915.

3 SHEETS—SHEET 3.

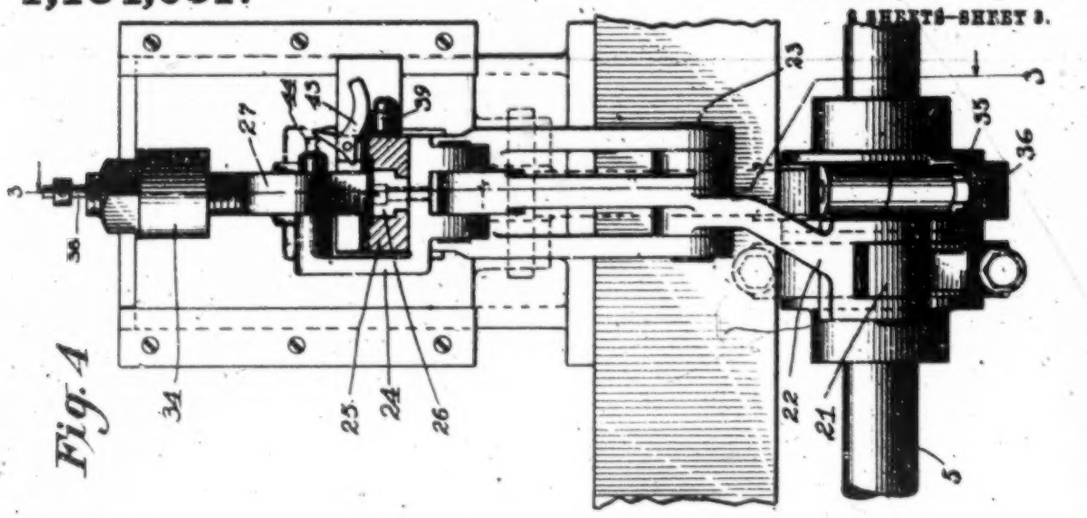


Fig. 4

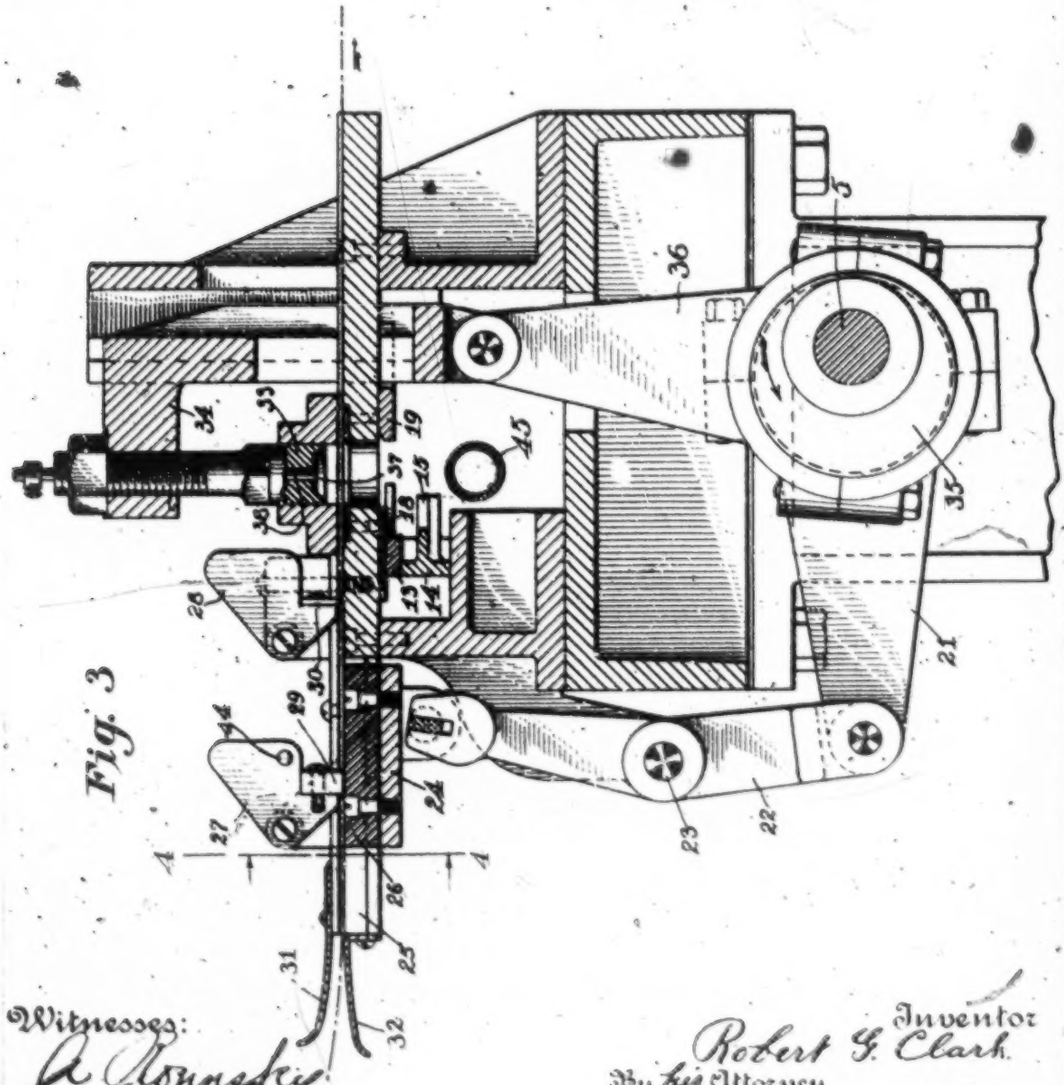


Fig. 3

Witnesses:

A. Rounsley

W. Blackmore

Inventor

Robert G. Clark.

By his Attorney

Lewis J. Doolittle

BLANK

PAGE

1511

R. G. CLARK.

BOTTLE CAP ASSEMBLING MACHINE.

APPLICATION FILED AUG. 20, 1913.

1,134,031.

Patented Mar. 30, 1915.

6 SHEETS—SHEET 4.

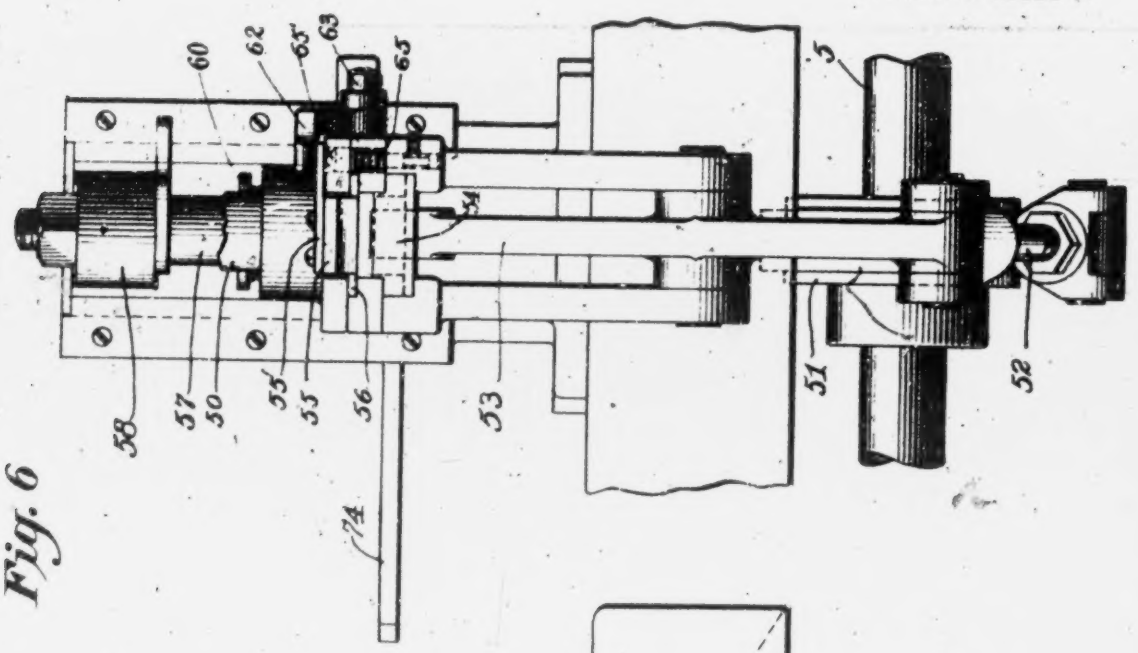


Fig. 6

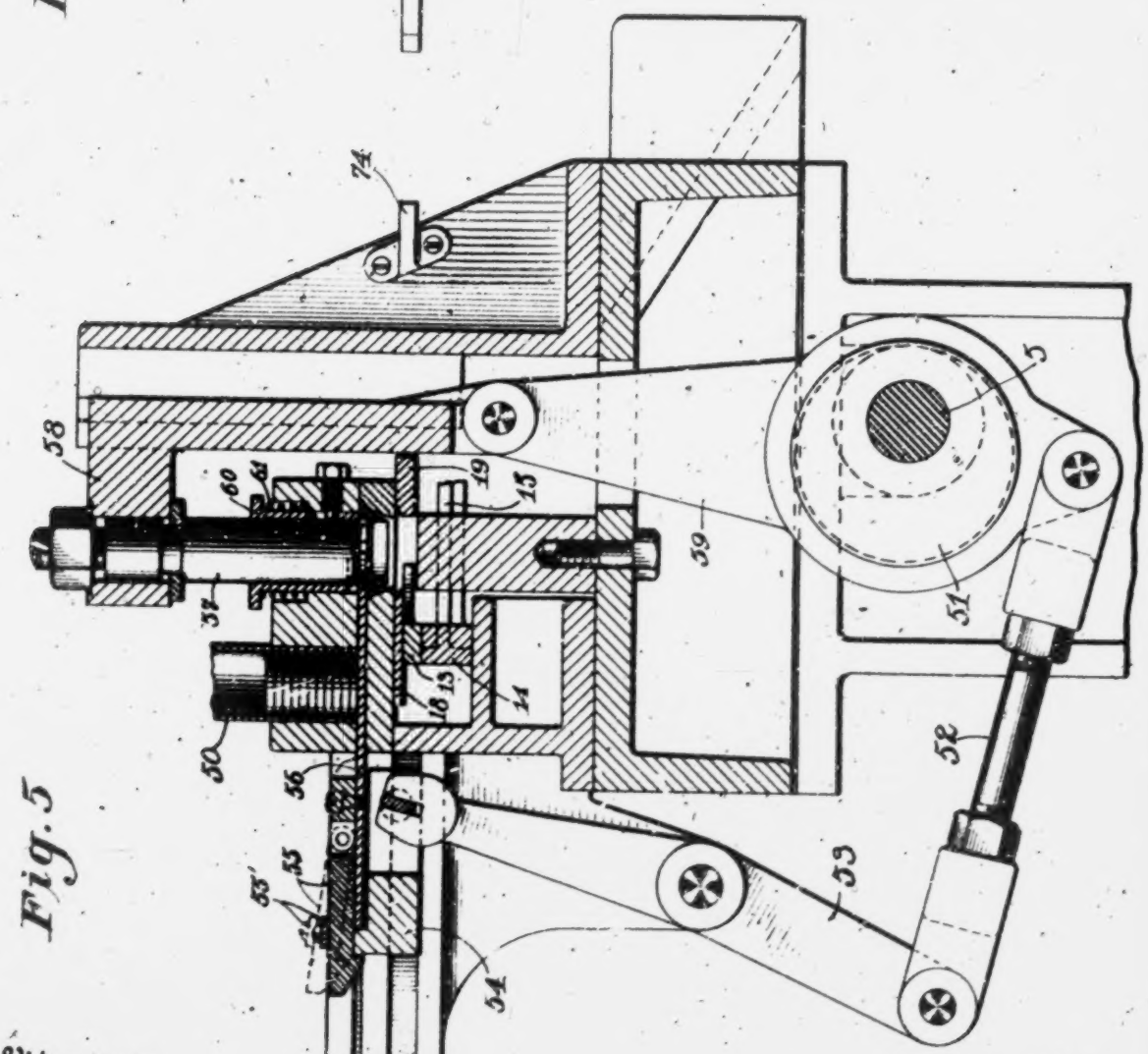


Fig. 5

Witnesses:
G. Rojansky
W. Clarke Smith

Inventor
Robert G. Clark.
By his Attorney
Lewis J. Doolittle

BLANK

PAGE

1512

R. G. CLARK.

BOTTLE CAP ASSEMBLING MACHINE.

APPLICATION FILED AUG. 20, 1913.

1,134,031.

Patented Mar. 30, 1915.

6 SHEETS—SHEET 5.

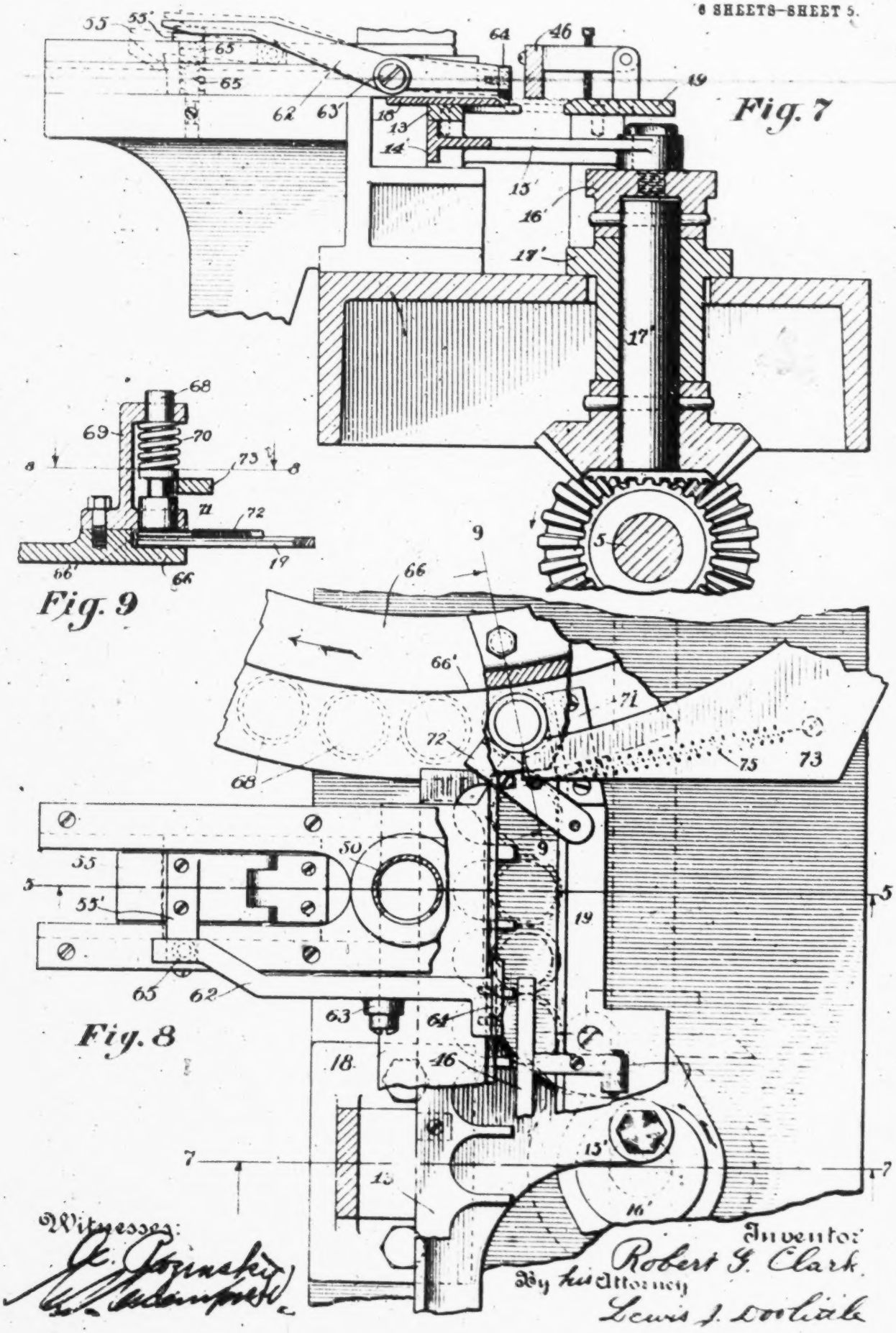


Fig. 7

Fig. 9

Fig. 8

Witnesses:

Inventor
Robert G. Clark.
By his Attorney
Lewis J. Dorlière

BLANK

PAGE

1513

R. G. CLARK.

BOTTLE CAP ASSEMBLING MACHINE.

APPLICATION FILED AUG. 20, 1913.

1,134,031.

Patented Mar. 30, 1915.

6 SHEETS—SHEET 6.

Fig. 10

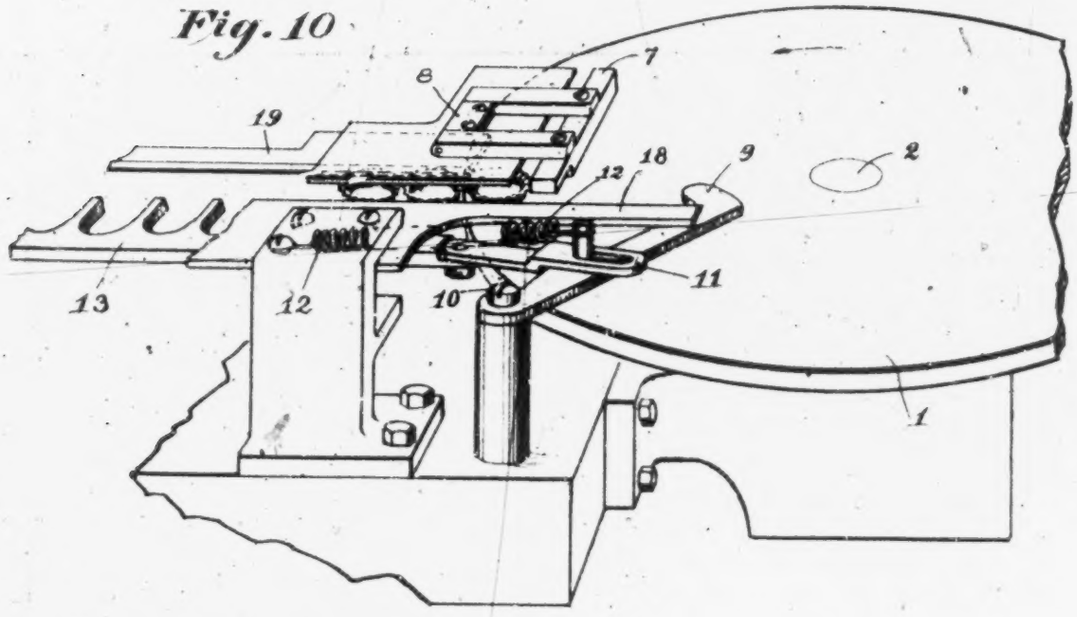


Fig. 11

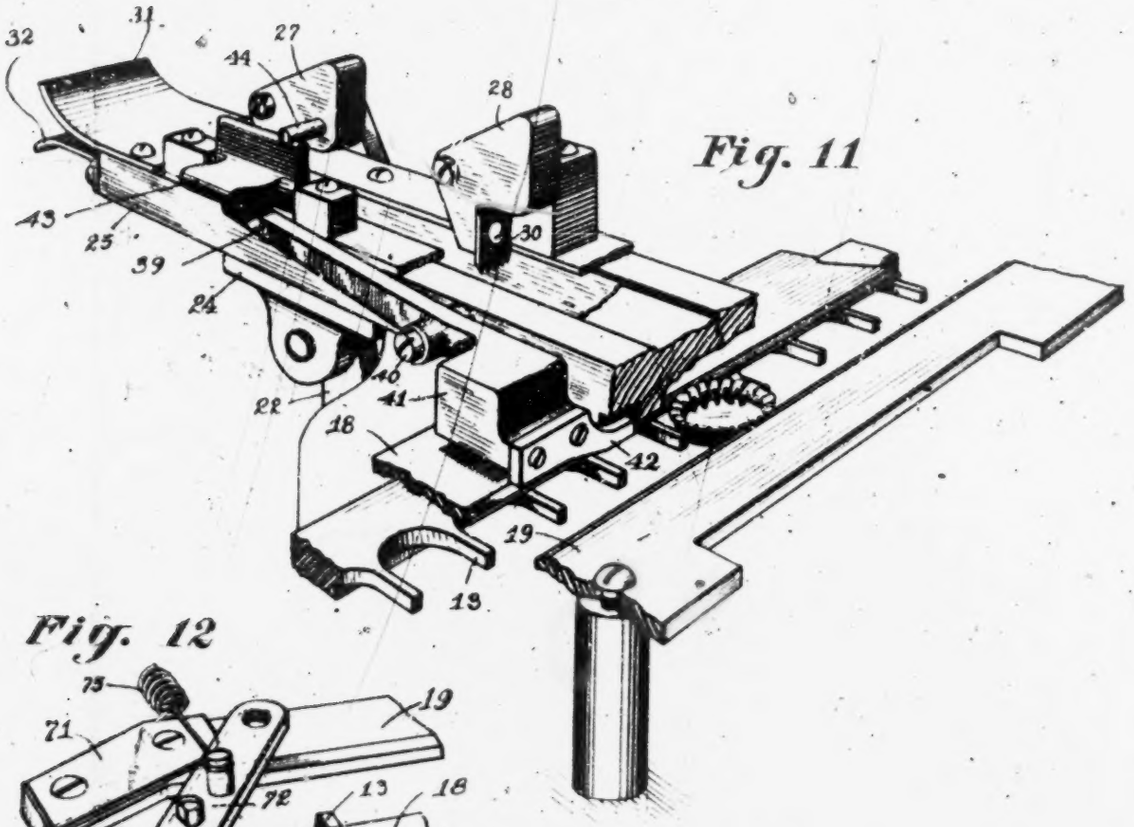
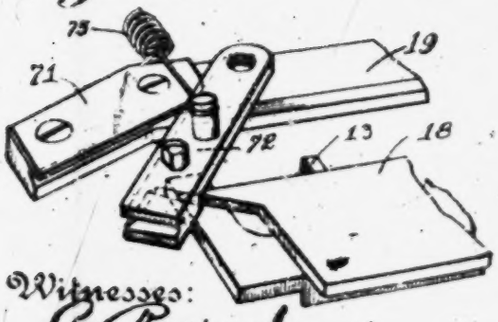


Fig. 12



Witnesses:

A. Rozinsky

M. Greenbaum

Inventor

Robert G. Clark

By his Attorney

Lewis J. Dooliale

UNITED STATES PATENT OFFICE.

ROBERT G. CLARK, OF NEW YORK, N. Y., ASSIGNOR TO JOHN ARON JOHNSON, OF BROOKLYN, NEW YORK.

BOTTLE-CAP-ASSEMBLING MACHINE.

1,134,031. Specification of Letters Patent. Patented Mar. 30, 1915.

Application filed August 20, 1913. Serial No. 785,637.

To all whom it may concern:

Be it known that I, ROBERT G. CLARK, a citizen of the United States, and resident of the city of New York, borough of Brooklyn, county of Kings, and State of New York, has invented certain new and useful Improvements in Bottle-Cap-Assembling Machines, of which the following is a specification.

This invention relates to a machine for assembling bottle caps. These caps consist of a metal cup shaped member having a facing of cork in the form of a flat disk secured to the inner surface of the cap.

The object of the invention is to provide a machine for placing these cork facings in position and securing the same in the cap automatically.

In the machine embodying the invention as illustrated in the accompanying drawings a flat rotary table receives the metal caps from a hopper, the caps being fed to the table by a chute. These caps are formed with a flaring edge which is utilized as a means for supporting the caps while the same are being advanced through the successive operations thereupon. The caps are carried forward by the rotary table into position to be engaged by a shifter finger, by means of which the same are moved upon a pair of parallel supporting rails upon which the caps are supported by their flaring edges.

The feeding mechanism comprises a finger bar of peculiar construction to which is imparted a rotary motion enabling it to engage the caps carried by the supporting rails during a portion of its movement and advance the same successively with an intermittent movement along the supporting rails. This feeding mechanism, while peculiarly adapted for use in this machine, may also be adapted for use in other machines and mechanisms for various purposes where a feeding device is useful.

The next step in the operation of assembling is the placing of an adhesive, such as a gummed disk of paper or other suitable material, in the cap for securing the cork disk in position. For this purpose an automatic mechanism is provided which punches the gummed disks from a strip and positions the same in the caps. Means are also provided for preventing the operation of this mechanism except when the caps are being fed thereto by the feeding mechanism. The caps are next advanced along the supporting rails by the feeding mechanism over burners or other heating means which melts or softens the adhesive material to the proper consistency to hold the cork facing. The cork facings, usually in the form of flat disks, are fed by a suitable mechanism which operates automatically to place the same in position in the cap. Means are also provided in connection with this mechanism which automatically prevent the operation thereof if no caps are being fed thereto by the feeding mechanism. After the cork facings have been placed in the caps the feeding mechanism delivers the same to a rotating table upon which are mounted a series of punches or pressure plungers which press the cork facings against the adhesive material in the caps and hold the same together while cooling and finally release and deliver the assembled caps.

The above and other features of the invention will be described more fully hereinafter in connection with the description of the machine shown in the accompanying drawings as illustrative of one operative embodyment of the same.

In the drawings like parts in the several views have been given the same reference numerals.

Figure 1 is a plan view of one end of the machine. Fig. 2 is a plan view of the opposite end of the same. (Figs. 1 and 2 form one complete plan view of the machine.) Fig. 3 is an enlarged sectional view on the line 3—3 of Figs. 1 and 4. Fig. 4 is an enlarged side elevation, partly in section, on the line 4—4 of Figs. 1 and 3. Fig. 5 is an enlarged sectional view on the line 5—5 of Figs. 2 and 8. Fig. 6 is a side elevation of Fig. 5. Fig. 7 is a sectional view on the line 7—7 of Figs. 2 and 8. Fig. 8 is a plan view of Figs. 5, 6 and 7, partly broken away. Fig. 9 is a detail sectional view on the line 9—9 of Fig. 8. Fig. 10 is a perspective view of the right hand end of Fig. 1. Fig. 11 is a perspective view of a portion of Fig. 3. Fig. 12 is a perspective view of a portion of Figs. 2 and 8.

A flat rotary table 1 is rotated in the direction indicated by the arrow in Figs. 1 and 10 by the vertical shaft 2 driven by the bevel gears 3 and 4 from the main driving shaft 5. This shaft is driven by means

of suitable pulleys, such as 6, shown in Fig. 2. The caps are fed to the table 1 from a chute, not shown, the caps being indicated by the dotted circles in Fig. 1 and are carried between the horizontal guides 7 and 8 by the movement of the table 1.

The shifter finger 9 is pivoted at 10 and is oscillated by a link 11 acting in conjunction with a spring 12 and successively engages the caps, pushing the same to the left into position to be engaged by the finger bar 13.

The finger bar 13 consists of a long flat bar slidably mounted and provided with a series of projections on one side spaced to receive the caps, allowing a slight clearance. This finger bar 13 is mounted upon a support 14, shown more clearly in Figs. 7 and 8, which is provided with two extensions 15 and 15′ connected to the crank members 16 and 16′ mounted upon the vertical shafts 17 and 17′, respectively. These shafts are driven by bevel gears from the main shaft 5, as shown. It will thus be seen that a rotary reciprocating movement is imparted to the finger bar 13 which causes the projections thereon to successively engage and advance the caps with an intermittent movement, the throw of the crank members 16 and 16′ being substantially equal to the diameter of the cap. As the caps are thus advanced the same are received upon and suspended from a pair of parallel supporting rails 18 and 19, which have their upper inner edges beveled to carry the caps suspended from their flaring edges so that the finger bar engages the body of the cap.

The mechanism for placing the adhesive material in the caps is shown in Figs. 3, 4 and partly in Fig. 11. An eccentric 20 is operated from the shaft 5. The eccentric arm 21 is connected to oscillate a lever 22, which is pivotally mounted at 23. The upper end of the lever 22 operates a slide 24 which is slidably mounted in the cross support 25 by the T shaped member 26. The slide 24 is provided with a projection extending upwardly and over the cross support 25 carrying a weighted pawl 27. A similar pawl 28 is pivotally mounted upon the frame of the machine. The pawl 27 carries a flexible member 29, preferably of rubber, at its lower end and the pawl 28 carries an engaging member 30 similarly located. A strip of gummed paper is fed from a roll, not shown, between the guides 31 and 32 over the cross support 25 and under the portions 29 and 30 of the pawls 27 and 28. The slide 24, carrying the pawl 27 is oscillated and moves the strip of gummed paper along the cross support 25, the strip being held against the return movement by the pawl 28 and its engaging portion 30. It will be seen that a wedging action is produced on the forward movement between the flexible member 29 on the pawl 27 and the paper strip, holding the paper against the member 26 of the slide 24 and a like action is produced by the pawl 28 against the paper upon the return movement, thus causing the paper strip to be advanced by the forward movement and held against the return movement.

A punch 33 is mounted in a vertically sliding carrier 34 and operated by the eccentric 35 on the shaft 5 through the eccentric arm 36. The punch is positioned over the cross support 25 and the strip of gummed paper, from which disks are punched and dropped into the caps as the same are advanced successively thereunder, carried by the supporting rails 18 and 19. In the recess in the bottom of the punch 33 is positioned a small disk 37 mounted upon a stem 38, which extends through a longitudinal opening in the punch and is provided with an adjustable stop at its upper end. The purpose of this is to cause the disk of gummed paper when cut from the strip to fall into the cap beneath, which might otherwise stick to the punch, the weight of the disk 37 and stem 38 being sufficient to push the disk out.

In case no caps are being fed by the finger bar 13 it is desirable to prevent the paper feeding mechanism from operating and for this purpose a weighted lever 39 is pivoted to the frame at 40. This lever is provided at one end with a weight 41 carrying a contact piece 42, which is positioned over the path of the caps and holds the lever 39 up, or in its inoperative position while any caps pass under the same. (See Figs. 1 and 11.) When there are no caps being fed the weighted end of the lever 39 falls and the opposite end is raised and engages a pivoted latch 43, (see Figs. 4 and 11,) swinging the upper end of the same inwardly into the path of a pin 44 on the pawl 27, holding the same out of engagement with the gummed strip of paper and preventing the feeding until released by the raising of the inner end of the lever 39 by the caps again passing under the same. It will thus be seen that the operation of this mechanism is controlled automatically by the presence or absence of the caps which are to receive the adhesive material supplied thereby.

After the adhesive material is placed in the caps, as just described, the same are advanced along the supporting rails 18 and 19 by the finger bar 13 over the flames from a number of gas jets supplied from a perforated pipe 45, shown in Fig. 3, or other suitable heating means. This melts or softens the adhesive material preparatory to receiving the cork facings. During this portion of their travel the caps are held against displacement on the supporting rails 18 and 19 by means of a bar 46, shown in Fig. 1, which

is positioned over the path of the caps and rests lightly thereon and is hinged at one side, as at 47 and 48, to the frame and provided with a weighted handle 49 extending on the opposite side. This construction permits the bar 46 to be raised to provide access to the caps for removing any that may become displaced, etc.

The mechanism for placing the cork facings in the caps is shown in Figs. 5 to 8 inclusive. These facings are in the form of disks of cork cut to size and placed in a vertical tube 50. An eccentric 51 on the shaft 5 is connected by the pitman rod 52 to a pivoted lever 53, which, in turn, is operatively connected to and oscillates a slide 54. On the forward movement a shoulder on the slide 54 engages a cork shifter slide 56, which is provided with a semi-circular recess at one end for engaging the lowermost of the cork disks in the tube 50 and moving the same forward beneath the plunger 57 over one of the caps advanced by the finger bar 13 upon the rails 18—19. On the return movement of the slide 54 the rear end engages a latch 55, which is pivotally attached to the cork shifter slide 56.

The plunger 57 is carried in a sliding head 58 mounted on the frame and operated by an eccentric arm 59 from the eccentric 51. The plunger 57 carries a sleeve 60 which has a tapered lower end and is slidably mounted upon the plunger and supported by a spring 61. The purpose of this sleeve is to locate or center the cap beneath the plunger so that the cork facing will be properly placed or positioned therein. Means are provided for preventing the operation of this mechanism and stopping the feeding of the cork facings when there are no caps being fed beneath the plunger. These means are shown in Figs. 7 and 8 and consist of a lever 62 pivotally mounted upon the frame of the machine at 63 and provided at one end with a foot piece 64 which rests upon the caps as the same are advanced thereunder. The lever 62 is thus normally held in inoperative position and permits the cork feeding mechanism to operate as just described. Should no caps be present, however, the inner end 64 of the lever 62 being unsupported allows the outer end to be raised by the action of the spring 65 and its plunger 65′ positioned beneath the outer end of the lever 62. A projection 55′ from the latch 55 passes between the end of the lever 62 and the plunger 65′ and the latch 55 is thereby raised out of engagement with the slide 54, consequently, the cork shifter slide 56 is not returned with the return movement of the slide 54 and the feeding of the corks is thus automatically prevented as long as no caps are being advanced by the finger bar.

The caps are now delivered to a rotating table 66, which is revolved by the vertical shaft 67 driven by a worm and gear from the main shaft 5, as shown in Fig. 2. Upon the table 66 a number of pressure plungers 68 are mounted, these being indicated in Figs. 2 and 8 and shown in detail in Fig. 9. The plungers 68 are slidably mounted in a bracket 69 attached to the table 66. A spring 70 normally holds the plunger 68 against the cork facing in the cap and presses the same together while cooling, this taking place during one revolution of the table 66.

The end of the supporting rail 19 is bent to extend angularly over the revolving table 66 and a flat cap 71 is secured on top of this angular portion extending over the beveled edge for holding the flaring edge of the caps as the same are fed upon the table by the movement of the finger bar 13. (See Figs. 8 and 12.) A swinging finger 72 is pivotally mounted upon the rail 19 and extends over the table 66. The end of this finger 72 is swung out of the path of the caps successively by engagement with the plungers 68 and as the plunger ahead of the one about to receive the cap passes out of engagement with the finger the finger 72 the same snaps back, by the action of the spring 75, against the cap, which has just been advanced upon the table 66 by the finger bar 13, and positions the cap against the shoulder 66′ on the table 66 and the rail 19, with its flaring edge under the cap 71, and holds the cap until the following plunger 68, which passes off from the cam 73, engages the same. The cam 73 is stationary and positioned in the path of the plungers 68, the outer end being inclined engages in a slot in the plungers 68, as shown in Figs. 2 and 9, and raises the same successively from the caps, which are thus released and removed from the table by the further movement of the same under the ejector finger 74, which is mounted on the frame of the machine and extends over the table 66 in the path of the caps when released by the plunger 68, as just described.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention designed without departing from the scope thereof I intend that all the matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative merely of an operative embodiment of my invention and not in a limiting sense.

What I claim is:—

1. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, a pair of parallel supporting rails upon which the caps are suspended from their flaring edges, means for shifting

the caps successively to the supporting means, a hinged bar positioned over the path of the caps upon said rails and resting lightly thereupon to prevent their displacement, means for advancing the caps successively upon said supporting rails during the operation of assembling, means for placing an adhesive in said caps, means adapted to automatically control the operation of said adhesive placing means, means for heating the cap and adhesive therein, means for placing cork facings in said caps, means adapted to automatically control the operation of said cork placing means, means for pressing the cork facings and caps together against the adhesive, and means for delivering the assembled caps from the machine.

2. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, means for shifting the caps successively to a supporting means upon which the caps are supported and guided in a straight path, means for advancing the caps successively upon said supporting means during the operation of assembling, a pawl carried by an oscillating slide adapted to feed a strip of adhesive paper to a punch, a punch positioned over the path of the caps adapted to punch disks from the strip of adhesive paper and place the same successively in the caps, a lever having one end weighted and positioned over the path of the caps and held thereby in its inoperative position and having its opposite end arranged and adapted to hold said feeding pawl in an inoperative position when no caps are being fed, means for heating the cap and adhesive therein, means for placing cork facings in said caps, means for pressing the cork facings and caps together against the adhesive, and means for delivering the assembled caps from the machine.

3. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, means for shifting the caps successively to a supporting means upon which the caps are supported and guided in a straight path, means for advancing the caps successively upon said supporting means during the operation of assembling, means for placing an adhesive in said caps, means for heating the cap and adhesive therein, a cork shifter slide for feeding the cork facings to the caps, a latch pivotally attached to said cork shifter slide and normally engaging an oscillating slide, a lever having one end positioned over the path of the caps and held thereby in its inoperative position and having its opposite end arranged and adapted to automatically control the position of said latch and the movement of said cork shifter slide, means for pressing the cork facings and caps together against the adhesive, and means for delivering the assembled caps from the machine.

4. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, means for shifting the caps successively to a supporting means upon which the caps are supported and guided in a straight path, means for advancing the caps successively upon said supporting means during the operation of assembling, means for placing an adhesive in said caps, means for heating the cap and adhesive therein, means for placing cork facings in said caps, a revolving table upon which the caps are received, a series of pressure plungers mounted on said table adapted to press the cork facings and caps together against the adhesive, means actuated successively by said plunger for positioning and holding the cap in position to be engaged by the following plunger, and means for delivering the assembled caps from the machine.

5. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, means for shifting the caps successively to a supporting means upon which the caps are supported and guided in a straight path, means for advancing the caps successively upon said supporting means during the operation of assembling, means for placing an adhesive in said caps, means for heating the cap and adhesive therein, means for placing cork facings in said caps, a revolving table upon which the caps are received, a series of pressure plungers mounted on said table adapted to press the cork facings and caps together against the adhesive, a spring actuated finger extending over said table in the path of the caps and successively engaged by said plungers to move the same out of the path while each cap is being fed to the table and adapted when released to position and hold the cap in position to be engaged by the following plunger, and means for delivering the assembled caps from the machine.

6. In combination, means for feeding the caps, means for placing an adhesive in said caps, means for placing cork facings in said caps, a revolving table upon which the caps are received, a series of pressure plungers mounted on said table adapted to press the cork facings and caps together against the adhesive, a finger extending over the table into the path of the caps and successively engaged by said plunger to move the same out of the path while each cap is being fed to the table, and adapted when released to position and hold the cap in position to be engaged by the following plunger and means for delivering the assembled caps from the machine.

7. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, a pair of parallel supporting rails upon which the caps are suspended from their flaring edges, means for shifting

the caps successively to the supporting means, a hinged bar positioned over the path of the caps upon said rails and resting lightly thereupon to prevent their displacement, and means for advancing the caps successively upon said supporting rails during the operation of assembling.

8. In a machine for assembling bottle caps and the like, in combination, a rotary table, means for feeding the caps to said table, a pair of guides extending over said table, a pair of supporting rails upon which the caps are adapted to be received from said table, a reciprocating finger bar arranged under said supporting rails, and adapted to shift said caps successively along said rail, an oscillating shifter finger extending over said table and adapted to successively engage the caps and shift them to the supporting means, said shifter finger being actuated by the motion of said finger bar.

9. In a machine for assembling bottle caps and the like, in combination, means for successively feeding the caps means for placing an adhesive in said caps, means for heating the caps and adhesive therein, means for placing cork facings in said caps, a revolving table upon which said caps are received, a series of plungers mounted upon said table adapted to press the facings and caps together upon the adhesive, means successively operated by said plungers for positioning and holding the caps for engagement by the following plunger and means for delivering the finished cap from the machine.

10. In a bottle cap assembling machine, and the like, in combination, means for feeding the caps, means for placing an adhesive in said caps, means for heating the cap and adhesive, means for placing a cork facing in said caps, a rotary table upon which the caps are received, a series of pressure plungers on said table, an annular shoulder formed on said table, a stationary member extending over said table, a spring actuated finger extending over the said table in the path of the caps, and successively engaged by said plungers to move the same out of the path while each cap is fed to the table and adapted when released to force said cap against said annular shoulder and said stationary member for engagement by the following plunger and means for delivering the assembling caps from the machine.

11. In a machine for assembling bottle caps and the like, in combination, a supporting means, means for advancing the caps intermittently upon said supporting means during the operation of assembling, means for intermittently feeding a strip of adhesive paper over the caps during the period of advancement of said caps, a punch positioned over the path of the caps adapted to punch disks therefrom and place the same successively in the caps during the period of rest, and means controlled automatically by the caps to control the operation of said strip feeding means.

12. In a machine for assembling bottle caps and the like, in combination, means for delivering the caps, a rotary table upon which the caps are received, a pair of parallel supporting rails, a reciprocating finger bar adapted to engage and advance the caps successively during the operation of assembling, means for successively shifting said caps to said supporting rails comprising a pair of horizontal guides extending from said table and between which the caps are carried by the rotation of said table and an oscillating shifter finger operated by the reciprocation of said finger bar adapted to successively engage the caps and place the same in position to be engaged by the finger bar.

13. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for cutting a disk from a strip of binding material and inserting it into the cap, means for feeding the strip to said cutting means, and means for rendering said feeding means inoperative if said transporting means fails to bring a cap into registering position with said inserting means.

Signed at the city of New York, in the county and State of New York, this 18th day of Aug., 1913.

ROBERT G. CLARK.

Witnesses:

GEORGE NORDENHORS,

LEWIS J. DOOLITTLE.

BLANK

PAGE

1519

1763

DEFENDANT'S EXHIBIT N N N

CABLE ADDRESS "HAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS MYDESTY US"

United States District Court
Eastern District of New York
Exhibit N.N.N in evidence
Date Nov 1 31
Clerk
Deputy Clerk

Sold to M.K. Goetz Brewing Co.
St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. August 14, 1928

SHIPPED TO VIA Express prepaid

100	Gross special decorated crowns Gr. 34/ 2 colors-blue black and gold Inside gold lacquered XX quality natural cork discs faced with aluminum center of medium grith diameter, cork discs, paper backed. Case #1 P.O.B. Brooklyn, N.Y.	34	--	34

RECEIVED AUG 17 1928 M. K. GOETZ BREWING CO.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1519

1520

1764

DEFENDANT'S EXHIBIT O O O

United States District Court
Eastern District of New York
Exhibit O O O in evidence
Date Nov 8/31
Clerk
Deputy Clerk

6737/

CREDIT MEMORANDUM.

Brooklyn, NEW YORK. Oct. 2, 1928.

TO M. K. Goetz Brewing Co.,
St. Joseph, Mo.

FROM FERDINAND GUTMANN & CO.
Bush Terminal Bldg. #19,
Brooklyn, N.Y.

WE CREDIT YOUR ACCOUNT AS FOLLOWS:

Entire invoice August 14, 1928.

100 gross special decorated crocks $34.00

Letter to Atty
10/3/31 ©
Attached to Voucher
V #205

1521

1765

DEFENDANT'S EXHIBIT P P P

CABLE ADDRESS "HANTUS" NEW YORK
TELEPHONE CONNECTION

E 7371

United States District Court
Eastern District of New York
Exhibit PPP in evidence
Date OCT 1 31
Clerk
Deputy Clerk

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to

M.K. Goetz Brewing Co.
St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange.
Goods shipped at purchasers risk

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

August 23, 1928.

SHIPPED TO

VIA Express prepaid

100	Gr. special decorated crowns Gr. 34¢ Design: Goetz County Club 2 colors-blue black and gold Inside gold lacquered XX quality natural cork discs faced with aluminum center of medium width diameter, cork discs-paper backed Cases #1/2--2 cases 50 gross each F.O.B.Brooklyn, N.Y.	34	00	34 00

RECEIVED AUG 29 1928 M. K. GOETZ BREWING

O.K. Herbert

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1522

1766

DEFENDANT'S EXHIBIT Q Q Q

CABLE ADDRESS "HANTUG" NEW YORK
TELEPHONE CONNECTION

E 2371

United States District Court
Eastern District of New York
Exhibit QQQ in evidence
Date Jan 8/35
Clerk
Deputy Clerk

FERDINAND GUTMANN & Co.

"YOUR INTERESTS, INTEREST US"

Sold to

M.K. Goetz Brewing Co.
St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Aug. 31, 1928.

SHIPPED TO ✓ VIA Old Dominion S.S. Norfolk N & W-Pa-C.G.W. at Chicago.

25,000 Gr. Special Decorated Crowns Gr. 30¢ Design: Goetz Country Club. Special Select Natural Cork discs paper backed. 125 cases 2685 #61/73 - 200 gr. each 1627 1/112 200 " " A/C Contract 7/20/27 1 Case Heated Caps #501 - No charge		7500	00	
3,000 Gr. Special decorated Crowns Gr. 34¢ Design: Goetz Country Club XX quality natural cork discs faced with aluminum centers. Cork discs paper backed. Cases marked with red "F". 15 cases 2717 #1/2 - 200 gr. each 5/17- 200 gr. each A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.		1020	00	
				8520 00
				170 40
				8,349 60

RECEIVED SEP 4 1928

Paid 9/18/28

$V3- 3400
$V31 85000
855400
V40 17108
838292

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1523 1767

DEFENDANT'S EXHIBIT R R R

CABLE ADDRESS "HAMTUS" NEW YORK
TELEPHONE CONNECTION

E 7371 G
United States District Court
Eastern District of New York
Exhibit R R R in evidence
Date Nov 1931
Clerk
Deputy Clerk

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

Sold to

M. K. Goetz Brewing Co.
St. Joseph, Mo.

RECEIVED OCT 2 1928

Terms: 2/10
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Sept. 21, 1928.

SHIPPED TO VIA Express Prepaid.

200	Gr. Special Decorated Crowns Gr. 34¢ Design: "Goetz Country Club" 2 colors: Blue black and gold Inside gold lacquered XX quality natural cork discs faced with aluminum center of medium width diameter, cork discs - paper backed 1 case-#70 F.O.B. Brooklyn, N.Y. Rec'd OK Letter 134-4	68	00	68	00
		29¢	(00)	13¢	44

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1524

1768

DEFENDANT'S EXHIBIT 888

CABLE ADDRESS "HANTUS" New York
TELEPHONE CONNECTION

United States District Court
Eastern District of New York
Exhibit ... in evidence
Date ...

Clerk
Deputy Clerk

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

Sold to

M. K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Oct. 26, 1928.

SHIPPED TO

VIA Old Dominion S.S., Newport News-C&O-P.R.R.C.G.W. to Chicago.

26,800	Gr. Special Decorated Crowns Gr. 34/	9112	00	9112 00
	2 colors: Blue black and gold Inside gold lacquered XX quality natural cork discs faced with aluminum center of medium width diameter cork discs - Paper backed			2% 182-24 8929 76
	2717-#18/69-71/135--2779-#2/18--134 cases 200 gross each			
1	Case Nested Caps #1875			

RECEIVED OCT 29 1928 K. GOETZ

A/C Contract 6/22/28
F.O.B. Brooklyn, N.Y.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1525

1769

DEFENDANT'S EXHIBIT T T T

Cable Address "HANTUG" New York
Telephone Connection

FERDINAND GUTMANN & Co.

United States District Court
Eastern District of New York
Exhibit T.T.T. In evidence
Date Nov 8/31
Clerk
Deputy Clerk

Sold to

M. K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Nov. 24, 1928.

SHIPPED TO

VIA Universal C/L & Dist. Co.

800	Gr. Special Decorated Crowns Gr. 34#	272	00	
	Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs - XX quality Aluminum centers - cork discs - paper backed			
	#119/122--4 cases--200 gr. each			
200	Gr. Special Decorated Crowns Gr. 34#	68	00	340 00
	Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs - XX quality Aluminum centers - cork discs specially stuck			
	1 case #1893 marked in red.			
	F.O.B. Brooklyn, N.Y.			
	B/L enclosed.			

340.40
less 1% on 1cr cross Nbl 99.44
40.96
6.00
2 % Dis 34.16
134.4 Bottle Seal Sup.

RECEIVED NOV 30 1928 H. K. GOETZ

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1526
1770

Cable Address "MANTUS" New York
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Yours for Efficiency, Economy & Co."

Sold to M. K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

Nov. 30, 1928.
Lehigh Valley-Grand Trunk
VIA Lire c/o C.G.W. at Chicago

SHIPPED TO

86,800	Gr. Special Decorated Crowns "Goetz Country Club" 3 colors: Blue black and gold Inside gold lacquered XX quality natural cork discs faced with aluminum center of medium width diameter, cork discs - paper backed #19/29-35-37-38-40-41-45/118-128/166- 134 cases--200 gr. each A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.	Gr. 34/	9112	00	9112 00
1	Case Wasted Caps				No Charge

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1527

1771

FERDINAND GUTMANN & Co.

Sold to M. K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms 2/10
Payable in N. Y. Exchange
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
MARSH TERMINAL NO. 10 BROOKLYN, N. Y. Dec. 31, 1928.

SHIPPED TO VIA Universal C/I & Dist Co.

600	Gr. Double Lacquered Crowns Gr. 33#	198	00	198	00
	XX quality natural cork discs faced with aluminum center of medium width diameter cork discs paper backed				
	5 cases--200 gross each				
	F.O.B. Brooklyn, N.Y.				
	Balance of order will follow.				
	For Malt Inc.				

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

RECEIVED JAN 3 1929 M. K. GOETZ

1528

1772

CABLE ADDRESS "MANTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.

"YOUR INTERESTS INTEREST US"

Sold to M. K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange.
Goods shipped at purchaser risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

Jan. 16, 1929.

SHIPPED TO

Lehigh Valley c/o
VIA Wabash c/o C. G. W. at C.

16,800	Gr. Special Decorated Crowns Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs - Paper backed 1908--#1/79--79 cases--200 gr. each Reconditioned with aluminum centers A/C 136 cases returned to us 12/5/28 and 1 case returned to us 11/19/28	No Charge	
11,000	Gr. Special Decorated Crowns Gr. 24¢ Design: "Goetz Country Club" 2 color decoration: Blue black and gold inside gold lacquered Natural cork discs faced with aluminum centers - Special adhesive 1908--#1/55--55 cases--200 gr. each	3740 00 29 ad	3740 00 1480 3,665 20
1	Cases Nested Caps #1901	No Charge	
2903 - 1/55	Cases stencilled in red. F.O.B. Brooklyn, N.Y. B/L attached.	OK	

134-4 Bottling Dept. Supplies

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1529

1773

CABLE ADDRESS "HAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

Sold to

M. K. Goetz Brewing Co.
St. Joseph, Mo.

RECEIVED FEB 18 1929

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Feb. 15, 1929.

SHIPPED TO

VIA Universal C/L & Dist.Co.

800	Gr. Special Decorated Crowns Gr.34¢ Design: "Goetz Malt Tonic" 2 color decoration: Green and gold Inside gold lacquered Natural cork discs faced with aluminum center of medium width diameter cork discs paper backed - Special adhesive #1/4--4 cases--200 gr. each A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.	272	00	272	00

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1530
1774

CABLE ADDRESS "MAINTUS" NEW YORK
TELEPHONE CONNECTION

a.71.k

FERDINAND GUTMANN & Co.

"Yeast for Fermentation, Ferment for Yeast"

Sold to M. K. Goetz Brewing Co.
St. Joseph, Mo.

Terms: 2/10, net cash 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Feb. 21, 1929.

SHIPPED TO

VIA L.V. c/o Wabash c/o C.G.W. at Chicago. Southern #166649

1,180	Gr. Specila Decorated Crowns Gr. 34¢ Design: "Goetz Malt Tonic" 2 color decoration: Green and gold Inside gold lacquered Natural cork discs faced with aluminum center of medium width diameter cork discs paper backed - Special adhesive 1934--#9/9--5 cases--200 gr. each #10--1 case--180 gr.	401	20		
14,825	Gr. Special Decorated Crowns Gr.34¢ Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs faced with aluminum center of medium width diameter - Cork discs paper backed - Special adhesive 2903--#58/124--69 cases--200 gr. each 1908--#138/142--5 cases--265 gr. each A/C Contract 6/22/28 F.O.B. B'klyn, N.Y. Cases Stencilled in Red.	5040	50	5441	70
11,600	Gr. Special Decorated Crowns Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs - Paper backed Reconditioned with aluminum centers a/c 136 cases returned to us 12/5/28 and 1 case returned to us 11/19/28 1908--#80/137--58 cases--200 gr. each Case Nested Caps #101 B/L enclosed.				

134 4 Wabash
No Charge

RECEIVED
FEB 25 1929
M. K. G.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1531

1775

CABLE ADDRESS "MANTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to M.K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10 or net cash 90 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. March 11,1929

SHIPPED TO VIA Universal C/L & Dist. Co.

	1,000	Gr. Special Decorated Crowns Gr. 34¢	340	00	340	00
		Design: Artificial Grape - Flavor & Color Inside gold lacquered 2 color decoration: White and purple Natural cork discs faced with aluminum center of medium width diameter, cork discs - Paper backed Special adhesive				
		#4/8--5 cases--200 gr. each				
		A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.				
		Balance of order will follow.				

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

RECEIVED MAR 15 1929 M K GOETZ BREWING CO.

1532

1776

CABLE ADDRESS "HAENTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your Interests Invariably Ours"

Sold to H.K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms 2/10 or net each 30 days
Payable in N. Y. Exchange.
Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

March 11, 1929

SHIPPED TO

VIA Universal C/L & Dist. Co.

1,000	Gr. Special Decorated Crowns Gr.34¢	340	00	340	00

RECEIVED MAR 15 1929 H. K. GOETZ BREWING CO.

Design: Artificial Grape - Flavor & Color
Inside gold lacquered
2 color decoration: White and purple
Natural cork discs faced with aluminum
center of medium width diameter, cork
discs - Paper backed
Special adhesive

A/S--5 cases--200 gr. each

A/S Contract 6/22/28
F.O.B. Brooklyn, N.Y.

Balance of order will follow.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1533

1777

CABLE ADDRESS "FAHNEMANN" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS OUR CARE"

4/3 Sold to

M.K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 3, 1929.
Old Dominion S.S. Newport
SHIPPED TO VIA News, C&O, Pa. C.G.W. at O.

2,000	Gr. Special Decorated Crowns Gr. 34#	680	00
	Design: "Artificial Grape-Flavor & Color"		
	Inside gold lacquered		
	2 color decoration: White and pruple		
	Natural cork discs faced with aluminum		
	center of medium width diameter, cork		
	discs paper backed - Special adhesive		
4	#201/210--10 cases--200 gr. each		
26,800	Gr. Special Decorated Crowns Gr. 34#	9112	00
	Design: "Goetz Country Club"		
	2 color decoration: Blue black and gold		
	Inside gold lacquered		
	Natural cork discs faced with aluminum center		
	of medium width diameter cork discs		
	paper backed - Special adhesive		
(2)	#1/134--134 cases--200 gr. each		
1	Case Nested Caps #1935		
	A/C Contract 6/22/28		
	F.O.B. Brooklyn, N.Y.		
		9792	00

Do not deduct 5740
Do deduct 5441 70
same with 3990 less 4%
Do on or after 3737
18.973 70
3794 40
18.594 30

134-4
Water Lac

RECEIVED

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1534

1778

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

RECEIVED MAY 1 1929 N. K. GOETZ BREWING CO.

Sold to M.K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 29, 1929.

SHIPPED TO Old Dominion S.S. to
Via Norfolk-N&W-Pa. C.G.W. at C.

26,800	Gr. Special Decorated Crowns Gr. 34¢ Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed - Special adhesive #1/134--134 cases--200 gr. each A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.	9112	00	9112	00
1,000	Gr. Ditto #37/41--5 cases--200 gr. each	No Charge as per our letter of April 10, 1929.			
1	Case Nested Caps #1999				

134-4 Bottling Dept Supplies

OK

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1535

1779

Cable Address "NAMTUB" New York
Telephone Connection

NX

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

Sold to M. K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N.Y.

May 29, 1929.
Old Dominion S.S.
VIA Norfolk, N&W, Pa. C.G.W. at C.

SHIPPED TO

26,800	Gr. Special Decorated Crowns Gr. 34		9112	00	9112	00
	Design: "Goets Country Club". 2 color decoration: Blue black and gold. Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter Cork discs paper backed					
	#1/134--134 cases--200 gr. each					
1	Case Nested Caps #2035					
	A/O Contract 6/22/28 F.O.B. Brooklyn, N.Y.					

134-4 Bottling Dept

RECEIVED JUN 3 1929 M. K. GOETZ BREWING CO.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1536
1780

CABLE ADDRESS "HANTUS" NEW YORK
TELEPHONE CONNECTION

A N

FERDINAND GUTMANN & Co.

Sold to please
Do not part
any
Deliver
please

M. K. Goetz Brewing Co.,
St. Joseph, Mo.

RECEIVED MAY 17 1929 M. K. GOETZ BREWING CO.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. May 14, 1929.

SHIPPED TO Via Dominion S.S. New Port
Via News Pa. C.G.W. at Chicago

26,800	Gr. Special Decorated Crowns Gr. 34/	9112	00	9112	00
	Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter Cork discs - Paper backed				
	#1/134--134 cases--200 gr. each				
1	Case Nested Caps #2034				
	A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.				

134-4
Beer Depot

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of Goods.

1537
1781

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

Sold to

M. K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. June 15, 1929.

SHIPPED TO Old Dominion S.S. New-
VIAport News-C&O, Pa. C. & N. at C.

26,800	Gr. Special Decorated Crowns Gr. 34¢	9112	00	9112	00
	Design: Goetz Country Club 2 color decoration: Blue black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter - Cork discs - Paper backed #1/75-76/134--134 cases--200 gr. each				
	A/C Contract 6/22/28				
1	Case Nested Caps #1146				
	F.O.B. Brooklyn, N.Y.				

134-4 Bottling

RECEIVED
JUN 17 1929
M K GOETZ
BREWING CO.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1538
1782

Cable Address "NANTUS" New York
Telephone Connection

FERDINAND GUTMANN & Co.

"Your Interests Ours"

Sold to M. K. Goetz Brewing Co.,
St. Joseph, Mo.

RECEIVED JUL 7 1929

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

June 28, 1929.

SHIPPED TO

Old Dominion S.S. Norfolk
VIA N&W-Pa. C.G.W. at Chicago

26,800	Gr. Special Decorated Crowns Gr. 34¢		9112	00	9112	00
	Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter Cork discs - Paper backed 3204-#1/85--3189-#76/87-89/93-111/134- #102/104-95-97/100--134 cases--200 gr. each					
1	Case Nested Caps #2084					
	A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.					

134-4 Gold Lacquer

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1539

1783

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your Interests Attended To"

Sold to M.K. Goetz Brewing Co.,
St. Joseph, Mo.

RECEIVED JUL 21 1929 M. K. GOETZ BREWING CO

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. July 19, 1929.

SHIPPED TO Via Old Dominion S.S. Newport News-C&O-C.G.W. at Chicago

26,800	Gr. Special Decorated Crowns Gr. 34/ Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter - cork discs - Paper backed 3171-#1/75-3169-#88-94-96-101-105/110- 3204-#86/134--134 cases--200 gr. each	9112	00	9112	00
				732	87
				8379	13
1	Case Nested Caps Order #2085 A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.				

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1540

1784

Cable Address "HANTUF" New York
Telephone Connection

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

RECEIVED
AUG 2 1929
M. K. GOETZ BREWING CO

Sold to M.K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms 2/10 net 90 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

July 30,1929 as of Sept.1,1929.
Old Dominion S.S. Norfolk
Via Pa.R.R. & P.C.C.&St.L.Ry. at Chicago.

SHIPPED TO

26,800	Gr. Special Decorated Crowns Gr.34	9112 . 00	2%	9112 00
	Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed			
	3261-#1/134--134 cases--200 gr. each			
1	Case Nested Caps #2131			
	A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.			

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1541
1785

CABLE ADDRESS "HAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to M.K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N.Y.

Aug. 10, 1929 as of Sept. 10, 1929.

SHIPPED TO Old Dominion S.S. Newport
VIA New-C&O-Pa-C.C.W. etc.

25,800	Gr. Special Decorated Crowns Gr. 34¢	9112	00	9112	00
	Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cort discs paper backed	290		182	21
	#1/134--134 cases--200 gr. each		@	8929	79
1	Case Nested Caps #2132				
	A/C Contract 6/22/28 F.O.B. Brooklyn, N.Y.				

1344 Bottling Dept

RECEIVED AUG 12 1929 M. K. GOETZ BREWING CO

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1542

1786

Cable Address "HAMTUG" New York
Bushwick Connection

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

134-4

RECEIVED
SEP 23 1929
M. K. GOETZ BREWING CO

Sold to M.K.Goetz Brewing Company
St. Joseph, Mo.

Terms: 2/10 N/90
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

September 19,1929

SHIPPED TO

Old Dominion S.S.Norfolk-Mail
VIA Pa.-C.G.W. at Chicago

26,800	Gr. Special decorated crowns Gr. 34/ Design: Goetz Country Club 2 color decorated-blue, black and gold Inside special adhesive gold lacquered natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed.	9112	00	9112	00
		20%		1822	24
				7292	76
		OK@			
	Cases #1/134--134 cases 200 grosa each				
	Case #2135--1 case rested caps				
	A/C contr. 6/22/28				
	F.O.B. Brooklyn, N.Y.				
					57/8

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1543

1787

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your interests interest us"

Sold to M.K.Goetz Brewing Company
St. Joseph, Mo.

CZ140

Terms: 2% 10 days net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

March 13th 1930
Via Dominion S/S-S.S.Newport
VIA New-C&O-Pa-C.G.W.at Chicago

SHIPPED TO

26,800	Gr. Special decorated crowns Gr. 34/ Design:Goetz Country Club 2 color decorated-blue, black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed	9112	00	9112 00
	#3441 - #1/32---#3425 - 1/58--- #3700 - 101/143---#3786 - 201 -- 134 cases 200 gross each			
	A/C contr. 6/22/28			
1	Case nested caps			
	F.O.B.Brooklyn,N.Y.			

RECEIVED MAR 21 1930 H. K. GOETZ BREWING CO

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1544
1788

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to

M.K. Goetz Brewing Co.
St Joseph, Mo.

Our order #C2277

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Mar. 13, 1930

SHIPPED TO

VIA with car 3/15/30

196	Gr. Special Decorated Crowns Natural cork discs without paper backing faced with aluminum center of medium width diameter gr. 33	65	66		
	#502--1 case 196 gross				
202	gr. Special decorated Crowns mold-proof compo cork 8/1" without paper backing with aluminum center of medium width diameter gr. .28	56	56		
	#301--1 case 202 gross			122	22
	Design: Goetz Country Club 2 color decorated -blue black and gold. Inside special adhesive lacquer				
	Note: both the above cases stencilled in red ink and marked Attention Mr. Ketterer				
	F.O.B. Brooklyn, N.Y.				

3 Days + for [illegible]

RECEIVED
MAR 17 1930
M. K. GOETZ
BREWING CO.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1545

1789

CABLE ADDRESS "NAMTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to M.K. Goetz Brewing Co.
St Joseph
Mo.

our order #02282
Terms: 2/10 net 90 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

April 14, 1930

SHIPPED TO

VIA See Below

26,800	Gr. Special Decorated Crowns gr..34 Design: Goetz Country Club 2 color decorated-blue, black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed A/C Contract 6/22/28- #144/9-151/4-1/184--134 cases 200 gross ea.	9112	00	
2,050	Gr. Special Decorated Crowns gr. .34 Design: Artificial Grape flavor and color Inside special adhesive and gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed 2 color decorated- white and purple #201/7--7 cases 200 gross each #208/210--3 cases 210 grosseach	690	20	
200	Special decorated crowns gr. .33½ Design: Goetz Country Club 2 color decorated -blue, black and gold Inside gold lacquered Natural cork discs faced with aluminum centers of medium width dia. cork discs without paper backing The case stencilled in red with the letter L in each corner #301--1 case 200 gross 1 case of nested caps Bill of lading enclosed Via: Old Dominion S.S. Norfolk, - N & W Pa. C.G.W. at Chicago. F.O.B. Brooklyn, N.Y.	67	00	9869 20

RECEIVED
APR 17 1930
M.K. GOETZ

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1546
1790

CABLE ADDRESS "KAISTUS", NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to M.K. Goetz Brewing Co.
St. Joseph, Mo.

Our order #C2817
Terms: 2/10 net 90 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY,
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. May 13, 1930

SHIPPED TO Old Dominio S.S. Newport News
VIA C & O -Pa-C.G.W. at Chicago.

26,800	Gr. Special Decorated Crowns Gr.. .34 Design: Goetz Country Club 2 color decorated- blue black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed A/C Contract 6/22/28- #1/134--134 cases 200 gross each	9112	00		
2,050	Gr. Special Decorated Crowns gr. . 28 Design: Goetz Country Club 2 color decorated - blue black and gold Inside gold lacquered mold-proof compo cork 8/1" without paper backing with aluminum center of medium width diameter-cases marked with large red D #201/7--7 cases 200 gross each #207/10-3 cases 210 gross each	568	40		
2,025	Gr. Special Decorated Crowns gr..28½ Design: Goetz Country Club 2 color decorated-blue black and gold Inside special adhesive gold lacquered mold-proof compo cork 8/1" paper back with aluminum center of medium width diameter Cases marked with large red P #301/7--7 cases 200 gross each #308/9--2 cases 210-gross each #310--1 case 205 gross 1 case of nested caps #2304 F.O.B. Brooklyn, N.Y.	577	13		
				10,257	53
	Less 2% Disc.			205	15
				10,052	38

RECEIVED MAY 16 1930 M. K. GOETZ BREWING CO

134-4 Book Dept Imprint

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of Goods.

1547

1791

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"Your interests, our interest too"

Sold to M.K. Goetz Brewing Co.
St Joseph,
Mo.

Our Order # 02256
Terms: 2/10 net 30 days
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N.Y.

June 13,1930
Via Dominio S.S. Norfolk
VIA N & W.Ry-C.O.&W. at Chicago.

SHIPPED TO

25,800	Gr. Special Decorated Crowns gr..34 Design: Goetz Country Club 2 color decorated- blue black and gold Inside special adhesive gold lacquered Natural Cork Discs faced with aluminum center of medium width diameter, cork discs paper backed #1/154--154 cases 200 gross each	9112	00	
1	Case of Rooted Caps	294	38	
1,015	Gr. Crowns gr..29 Design: Lemon Soda Artificial Flavor and color 2 color decorated- blue and white Inside gold lacquered 9/1" compo discs and aluminum center Mold proof compo discs 201/3--3 cases 200 gross each #204--1 case 205 gross #205--1 case 210 gross			9406.38
	Cases marked with a red Letter "L" B/L Enclosed F.O.B. Brooklyn, N.Y.			

OK

RECEIVED
JUN 16 1930

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1548

1792

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.

"YOUR INTERESTS INTEREST US"

RECEIVED JUL 12 1930

Sold to M.K. Goetz Brewing Co.
St Joseph, Mo.

Order No. C2364
Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

July 10, 1930

SHIPPED TO Old Dominion S.S. Newport News
VIA C&O-Pa-C.G.W.-at Chicago

26,800	Gr. Special Decorated Crowns gr..34 Design: Goetz Country Club 2 color decorated- blue black and gold Inside gold lacquered -special adhesive Natural cork discs faced with aluminum cenetr of medium width diameter cork discs paper backed gr. #1/134--134 cases 200 each A/C Contract 6/22/28- F.O.B. Brooklyn, N.Y.	9112	00	9112	00

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1928

1549

1793

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to M.K. Goetz Brewing Co.
St Joseph, Mo.

RECEIVED AUG 1 1930

Order No. 02400
Terms: 2/10 net 30 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N.Y.

July 30, 1930

SHIPPED TO Old Dominion S.S. Norfolk,
VIA N & W. Pa. C.G.W. at. Chicag

26,800	gr. Special Decorated Crowns gr. 34 Design: Goetz Country Club 2 color decorated- blue black and gold Inside special adhesive gold lacquered natural cork discs faced with aluminum center of medium width diameter cork discs paper backed #1/134--134 cases 200 gross each A/C Contract 7/26/29 B/I Enclosed F.O.B. Brooklyn, N.Y.	9112	00	9112	00

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of Goods.

1550

1794

CABLE ADDRESS "NANTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

F G & Co.

Sold to

M.K. Goetz Brewing Co.,
St. Joseph, Mo.

C 2621
Terms: 5% 10 days net 30
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Dec. 31st, 1930

SHIPPED TO

VIA Old Dominion S S NewPort News
C & O-Pa.CGW at Chicago

6,200	Gross Special Decorated Crowns Design: Goetz Country Club 2 color decorated - blue black and gold inside special adhesive gold lacquered specially reselected natural cork discs faced with aluminum center of medium width diameter, cork discs paper back #1/41—41 Cases 200 gross each	Gr..34	2788	00
19,200	Gross Special Decorated Crowns Design: Goetz Country Club 2 color decorated - blue black and gold inside gold lacquered mould proof composition cork discs 9/1" aluminum center-medium diameter #101/196—96 Cases200 gross each	Gr..28	5472	00
				8260 00

Balance of order willfollow

B/L enclosed

F O B Brooklyn, N.Y.

Entered

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1551

1795

Cable Address "NANTUS" New York
Telephone Connection

FERDINAND GUTMANN & Co.

"Your Interests Interest Us"

Sold to M. K. Goetz Brewing Co.,
St. Joseph, Mo.

Order No. C 2548
Terms: 2% 10 days net 30
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. January 30th, 1931

SHIPPED TO

VIA Old Dominion Str. Newport News
C & O-Pa-C.C. at Chicago.

23,200	gross Special Decorated Crowns Gr..28½		6612	00	6612	00
	Design: Goetz Country Club				less Invoices attached	14 70
	2 color decorated - blue black, and gold					6597 30
	inside gold lacquered					132 24
	Mould proof composition cork discs				less 2% disc	6465.06
	9/1" aluminum center medium diameter					
	$1/99-201/210-197/203--116 cases 200 gross each					
	B/L enclosed					
	F O B Brooklyn, N.Y.					
		134-4 Bottling			Napkins	

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1552

1796

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.

"YOUR INTERESTS INTEREST US"

3 Invoices
Less 7% 3 Invoices

Sold to M. K. Goetz Brewing Company
St. Joseph, Mo.

Order No. C 2058
Terms: 2% 10 days net 30
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. March 26th, 1931

SHIPPED TO

VIA Old Dominion S.S. Norfolk
N & W-Pa C.G.W at Chicago

26,800	Gross Special Decorated Crowns Design; Goetz Country Club 2 color decorated - blue black and gold inside gold lacquered mould proof composition cork discs 9/1" aluminum center medium diameter #1/134--134 cases 200 gross each F O B Brooklyn, N.Y.	Gr..	28	7504	00	7504	00

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1553

1797

CABLE ADDRESS "HAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to

M.K. Goetz Brewing Company
St. Joseph.
Mo.

Order No. C 2592
Terms: 2% 10 days net 30
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 18th, 1931

SHIPPED TO

VIA Universal C/L & Dist Co.

2,000	Gross Double lacquered Crowns Gr..25 9/1" composition cork mould proof and aluminum center - medium diameter #2592--1/9--9 cases 200 gross each #2578-6--1 case 200 gross P O B Brooklyn, N.Y. B/L enclosed Balance of order will follow	520	00	520	00

RECEIVED APR 22 1931 M. K. GOETZ BREWING CO.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1554

1798

CABLE ADDRESS "NAMTUG" N[illegible] .odx
TELEPHONE CONNECT

FERDINAND GUTMANN & CO.



Sold to

M.K. Goetz Brewing Company
St. Joseph,
Mo.

RECEIVED MAY 4 1931

Order No. C 2596
Terms: 2% 10 days net 30
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 30th, 1931

SHIPPED TO

VIA Old Dominion S.S. New-Port News
Pa-C.G.W. at Chicago

30,000	gross Special Decorated Crowns Gr..28 Design: Goets Country Club 2 color decorated - blue black, and gol[illegible] inside gold lacquered mould proof composition cork discs 9/1" aluminum center - medium diameter 71/150--150 cases 200 gross each F O B Brooklyn, N.Y.		8400	00	8400 00

Less 2 % Dis 168 00

8232 00

134-4
Bad Dept Loss

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1555

1799

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to M.K. Goetz Brewing Co.
St. Joseph, Mo.

RECEIVED JUN 1 1931

Order No. 0 2618
Terms: 2% 10 days not 30
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 12 BROOKLYN, N. Y.

May 28th, 1931
to of June 8th, 1931

SHIPPED TO

VIA -Old Dominion S.S. Norfolk- N & W.-Pa-C.C.W. at Chicago

30,000	Gross Special Decorated Crowns Gr..28 Design Goetz Country Club 2 color decorated - blue black and gold inside gold lacquered mould proof composition cork disc 9/1" aluminum center - medium diameter	8400.00	8400 00
	1/150—150 cases 200 gross each	2% 10	16800 8232 00
	F O B Brooklyn, N.Y.		
	13 4 Prod Days Inv		070

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1556

1800

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to

M. K. Goetz Brewing Co.
St. Joseph,

RECEIVED
JUL 6 1931
M. K. GOETZ
BREWING CO.

Order No. C-2840
Terms: 2% 10 days 30 Net
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

July 2-1931

SHIPPED TO

Old Dominion SS. Newport
VIA News - C&O-Pa-C.C.W. at Chicago

30,000	Gr. Special Decorated Crowns Design: Goetz Country Club 2 color decorated-blue black, and gold. Inside gold laoquered Mould proof composition cork discs 9/1" aluminum center	Gr. .28	8400 00	8400 00
	#4944 - #1/150 - 150 cases 200 gross each			
	a/c contract 6/26/29 Your Order - Letter 6/25/31			
	F.O.B. — Brooklyn, N.Y. - carload freight allowed			

Less for
Less 2%
1/3 4 std Dep't Supplies

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1557

1801

CABLE ADDRESS "NAMTUG" NEW YORK
TEL. "PHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to

M. K. Goetz Brewing Company

St. Joseph,

Mo.

Order No. 0 2655
Terms: 2% 10 days Net 30
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

July 31-1931
as of August 10-1931

SHIPPED TO

VIA Old Dominion SS. Norfolk-N&W.-Pa. C.G.W. & Chicago

30,000	Gr. Special Decorated Crowns Design: Goetz Country Club 2 Color decorated - blue black, and gold Inside gold lacquered Mould proof composition cork discs 9/16" aluminum centers	Gr. .28	8400 00	8400 00
	$1/150 — 150 cases 200 Gross each			
	a/c contract 7/26/29			
	F.O.B. — Brooklyn, N.Y. Carload freight allowed			
	B/L enclosed			

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of Goods.

1558

1802

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

anki

7
31
22
60

Sold to

M. K. Goetz Brewing Co.
St. Joseph,
Mo.

Dec 7/28 29.
3/23/3 2%
Less fr.

Order No. 0 2725
Terms: see below
Payable in N. Y. Exchange.
Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Dec. 24th, 1931

SHIPPED TO

VIA Old Dominion S.S Newport News
O & O - 2% C.G.W. at Chicago

30,000 Gross	Special Decorated Crowns Design: Goetz Country Club 2 color decorated - blue black and gold inside gold lacquered liners: mould proof composition cork disc 9/16 and aluminum center	Gr.	7350	00	7350 00
	$1/150 - 150 cases 200 gross each A/C Contract 7/25/29 F O B Brooklyn, N.Y. - carload freight allowed to St. Joseph TERMS: Special Dating 2% discount for payment 60 days from date of invoice 90 days net from date of invoice B/L enclosed				

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

RECEIVED DEC 29 1931

1559

1803

FERDINAND GUTMANN & CO.

BUSH TERMINAL No. 19. 39TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

PURCHASE: ORDER NO. & DATE / REQUISITION NO. / CONTRACT NO.

INVOICE DATE 3/21/32
OUR ORDER NO. 02753

SOLD TO
M. K. Gotes Brewing Co.
St. Joseph
Mo.

FOR CUSTOMER'S USE ONLY
ORDERED NO. | VOUCHER NO.
P. O. R. CHECKED
TERMS APPROVED | PRICE APPROVED
CALCULATIONS CHECKED
TRANSPORTATION
FREIGHT BILL NO. | AMOUNT
MATERIAL RECEIVED
DATE | SIGNATURE | TITLE
SATISFACTORY AND APPROVED
ADJUSTMENTS
ACCOUNTING DISTRIBUTION
AUDITED | FINAL APPROVAL

SHIPPED TO AND DESTINATION above
DATE SHIPPED 3/21/32
FROM Brooklyn, N.Y. Delivered
PREPAID OR COLLECT? prepaid
CAR INITIALS AND NO.
HOW SHIPPED AND ROUTE Universal C/L & Dist. Co.
TERMS: NET CASH 30 DAYS OR 2 % FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE

Package Numbers	Cases Cartons	Quantity	DESCRIPTION	Unit Price	EXTENSION		TOTAL	
1	1/180	180	Gross Special Decorated Crowns Design: Goetz Country Club 2 color decorated - blue black, and gold inside gold lacquered liners: mould proof composition cork discs 9/16" and aluminum center Case marked " SPECIAL" B/L enclosed	Gr. .24½	44	10	44	10
							43	22

1560

1804

A.M.K.

FERDINAND GUTMANN & CO.

BUSH TERMINAL No. 10. 39TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

ORDER NO. & DATE 7/26/29
REQUISITION NO.
CONTRACT NO.

INVOICE DATED 4/29/32
OUR ORDER NO. 02765

FOR CUSTOMER'S USE ONLY

SOLD TO: M. K. Goetz Brewing Co.
St. Joseph, Mo.

SHIPPED TO AND DESTINATION: above
DATE SHIPPED: 4/29/32
FROM: Brooklyn, N.Y.
CAR INITIALS AND NO. / HOW SHIPPED AND ROUTE: Old Dominion S. S. Norfolk-N & W-Pa-C.C.W. at Chicago.
TERMS: NET CASH 30 DAYS OR 2% FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE
PREPAID OR COLLECT?
Carload frt allowed to St. Joseph, Mo.

Package Numbers	Case Contents	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
15476 1/18						
	150/200	30,000	Gross Special Decorated Crowns Gr.	.24½	7350 00	7350 00
5538 1/132			Design: Goetz Country Club			
			2 color decorated - blue black and gold inside gold lacquered			
			liners: mould proof composition cork discs 9/1" and aluminum center			
			Less fil attached			
			134 ½ Less 2% Dc - 1470			
			O.K.Q.			

RECEIVED MAY 2 1932 M. K. GOETZ BREWING CO.

1561

1805

FERDINAND GUTMANN & CO.

BUSH TERMINAL No. 19. 39TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

ORDER NO. & DATE 7/28/29
REQUISITION NO.
CONTRACT NO.

INVOICE DATE 6/30/32
OUR ORDER NO. 22817

FOR CUSTOMER'S USE ONLY

ORDERED NO. | VOUCHER NO.
F. O. B. ORDERED
TERMS APPROVED | PRICE APPROVED
CALCULATIONS
TRANSPORTATION
PREPAID BILL OF LADING NO. | AMOUNT $
MATERIAL RECEIVED
DATE SATISFACTORY AND APPROVED
ADJUSTMENTS
ACCOUNTING DISTRIBUTION
FINAL APPROVAL

SOLD TO
M.K. Goetz Brewing Co.
St. Joseph
Mo.

SHIPPED TO AND DESTINATION above
DATE SHIPPED 6/30/32
CAR INITIALS AND NO.
NOW SHIPPED AND ROUTE B. Pa - C.G.W. at Chicago
TERMS: NET CASH 30 DAYS OR 2 % FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE

FROM Brooklyn, N.Y.
c/o Brooklyn, N.Y.
Old Dominion S.S. Newport News-C & O-

PREPAID OR COLLECT?
carload freight allowed to St. Louis

Package Numbers	Case Contents	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
1/151	151/200	30,200	Gross special decorated crowns Design: Goetz Country Club 2 color decorated - blue black and gold inside gold lacquered liners: mould proof composition cork discs 9/1" and aluminum center B/L enclosed	Gr. .24½	7599 00	7599 00
				Less frt		3(P 23 709077
				Less 2%		14798 694279

134 4 Bottling Dept

1562

1806

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19. 39TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

ORDER NO. & DATE 11/7/32
REQUISITION NO.
CONTRACT NO.

INVOICE DATE 11/16/32
OUR ORDER NO. C2863

FOR CUSTOMER'S USE ONLY

REGISTER NO. | VOUCHER NO.
P. O. C. CHECKED
TERMS APPROVED | PRICE APPROVED
CALCULATIONS CHECKED
TRANSPORTATION
FREIGHT BILL NO. | AMOUNT
MATERIAL RECEIVED
DATE | SIGNATURE | TITLE
SATISFACTORY AND APPROVED
ADJUSTMENTS
ACCOUNTING INFORMATION
AUDITED | FINAL APPROVAL

SOLD TO

M. K. Goetz Brewing Co.
St. Joseph,
Mo.

SHIPPED TO AND DESTINATION above
DATE SHIPPED 11/16/32
CAR INITIALS AND NO.
HOW SHIPPED AND ROUTE Universal
TERMS: NET CASH 30 DAYS OR 2 % FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE

FROM Brooklyn, N.Y.
Brooklyn, N.Y.
P. O. Frt. allowed to Chicago

PREPAID OR COLLECT
collect

Package Numbers	Cases Cartons	Quantity	DESCRIPTION		Unit Price	EXTENSION	TOTAL
1	1/200	200	gr. double lacquered crowns regular composition cork discs 1/9" thick and aluminum center	Gr.	.19½	39 00	
			Deduct difference in freight between New York to St. Joseph, and Chicago to St. Joseph				
		233	lbs.	cwt	875	1 90	37 10
			B/L enclosed			Less 2%	74
							36 36

134 # shipped

1563

1807

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19. 39TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

As of April 1, 1933

ORDER NO. & DATE 12/29/32
REQUISITION NO.
CONTRACT NO. 7/26/29

INVOICE DATE 12/30/32
OUR ORDER NO. 62869

FOR CUSTOMER'S USE ONLY

SOLD TO

M. K. Goetz Brewing Co.
St. Joseph
Mo.

SHIPPED TO AND DESTINATION above
DATE SHIPPED 12/30/32
CAR INITIALS AND NO.
HOW SHIPPED AND ROUTE Old Dominion S.S. Norfolk-N & W-Pa-C.&.W.at Chicago
TERMS NET CASH 30 DAYS OR 2 % FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE

FROM Brooklyn, N.Y. PREPAID OR COLLECT
a.a.a. Brooklyn, N.Y.
Carload frt allowed to St. Joseph

Package Numbers	Case Codes	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
201/63	63/200	12,600	Gr. Reconditioned goods returned 8/19/32 Design: Goetz Country Club	24½	3087 02 memo	
1/150	150/200	30000	Gr. Special decorated crowns Design: Goetz Country Club 2 color decorated - blue blank and gold inside gold lacquered liners: gould proof composition cork discs 9/1m and aluminum center	Gr. .23	6900 00	8900 00
			B/L enclosed		JAN 3 1933	

Lea Final Bill 13284
6467.16
138.09
6329.16

1564

1808

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19. 39TH ST. & 2ND AVE
BROOKLYN, NEW YORK

FOR CUSTOMER'S USE ONLY

ORDER NO. & DATE
REQUISITION NO.
CONTRACT NO.

INVOICE DATE May 27, 1933
OUR ORDER NO. C-2936

SOLD TO
M. K. Goetz Brewing Company,
St. Joseph,
Mo.

SHIPPED TO AND DESTINATION above
DATE SHIPPED 5/27/33
CAR INITIALS AND NO.
HOW SHIPPED AND ROUTE Old Dom.S.S. Newport News C.& O.-P.R.R.-C.& W.I.
FROM Brooklyn, N. Y. PREPAID OR COLLECT?
F. O. B. Brooklyn - freight equalized with Chicago
TERMS: NET CASH 30 DAYS OR 2 % FOR PAYMENT WITHIN THE ... at Chicago

REGISTER NO. | VOUCHER NO.
P. O. S. CHECKED
TERMS APPROVED | PRICE APPROVED
CALCULATIONS CHECKED
TRANSPORTATION
FREIGHT BILL NO. | AMOUNT
MATERIAL RECEIVED
DATE | SIGNATURE | TITLE
SATISFACTORY AND APPROVED
ADJUSTMENTS
ACCOUNTING DISTRIBUTION
AUDITED | FINAL APPROVAL

Package Numbers	Case Contents	Quantity	DESCRIPTION	Unit Price	EXTENSION		TOTAL
1/149	149/200	29,800	gr.4 Special Decorated Crowns	gr.	.20½	6109	
			Design: Goetz Country Club				
			2 Color Decorated; Blue Black and Gold Inside gold lacquered				
			Liners: Regular composition cork discs 9/1" and aluminum centers				
			Same quality as our sample case of double lacquered crowns shipped to you Nov. 16, 1932				
			Allowance of difference in freight between New York to St. Joseph and Chicago to St. Joseph				
			37,536 lbs. @ per 100 lbs.		.29-	108	85
			B/L enclosed				6000 18
			Less 2%				123 18
							5877 77

RECEIVED MAY 29 1933 GUTMANN & CO.

134-4
Bottling Dept

1565

1809

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19, 39TH ST. & 2ND AVE
BROOKLYN, NEW YORK

ORDER NO. & DATE 12/18/33
REQUISITION NO.
CONTRACT NO. 6/9/33

as of April 1/34
INVOICE DATE Dec. 29, 1933
OUR ORDER NO. C-8160

FOR CUSTOMER'S USE ONLY
REGISTER NO. | VOUCHER NO.
F. O. B. SHIPPED
TERMS APPROVED | PRICE APPROVED
CALCULATIONS CHECKED
TRANSPORTATION
FREIGHT BILL NO. | AMOUNT
MATERIAL RECEIVED BY
DATE | SIGNATURE
SATISFACTORILY (OR) APPROVED
ADJUSTMENTS
ACCOUNTING DISTRIBUTION
AUDITED | FINAL APPROVAL

RECEIVED
K COETZ

SOLD TO
M. K. Goetz Brewing Co.
St. Joseph,
Missouri.

SHIPPED TO AND DESTINATION above
DATE SHIPPED 12/29/33
CAR INITIALS AND NO.
NOW SHIPPED AND ROUTE Old Dominion S.S. Norfolk - H&W - Pa. C.C.W. at Chicago, Ill.
TERMS: NET CASH 30 DAYS OR 2 % FOR PAYMENT WITHIN TEN DAYS FROM ~~DELIVERED~~ April 1,1934

FROM Brooklyn, N. Y.
PREPAID OR COLLECT?
F. O. B. Bklyn.,N.Y. - carload freight equalized with Chicago

Package Numbers	Cases Cartons	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
1/148 149	148/200 1/150	29,730	gr. Special decorated "STAYSTUK"CROWNS gr. Design: Goetz Country Club 2 Color Decorated: Blue Black & Gold Inside gold lacquered	20½	6094 65	
1/38-41/50	46/200	9,600	gr. Double Lacquered "STAYSTUK" CROWNS gr.	.19	1824 —	
			All above crowns have Liners: Regular Composition Cork Discs 9/1" and "STAYSTUK" Aluminum Center Spot		7918 65	
			Allowance of difference in freight between New York to St. Joseph and Chicago to St. Joseph 46,525 lbs. @ per 100 lbs.	.30	144 98	
						7773 67
			Upon shipment of 70,000 gr. the M. K. Goetz Brewing Co. will be entitled to a rebate of 1/2¢ per gross not only upon this quantity, but also upon the carload shipped on May 27, 1933; all of this in accordance with agreement of June 9th, 1933.	Less 2%		155 37
						7618 30
			(Balance of Order will follows)			
			B/L enclosed			

7918.65
155 37 30

134-4
Bottling dept

1566

1810

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19. 39TH ST. & 2ND AVE

BROOKLYN, NEW YORK

ORDER NO. & DATE 12/18/33

REQUISITION NO.

CONTRACT NO 6/9/33

as of Apr. 1, 1934

INVOICE DATE Jan. 12, 1934

OUR ORDER NO. C3171

FOR CUSTOMER'S USE ONLY

REGISTER NO. | VOUCHER NO.

F. O. B. CHECKED

TERMS APPROVED | PRICE APPROVED

CALCULATIONS CHECKED

TRANSPORTATION

FREIGHT BILL NO. | AMOUNT

MATERIAL RECEIVED

DATE | SIGNATURE | TITLE

SATISFACTORY AND APPROVED

ADJUSTMENTS

ACCOUNT NO DISTRIBUTION

ACCOUNTED | FINAL APPROVAL

SOLD TO

M. K. Coets Brewing Co.
St. Joseph
Mo.

Pay 4/11/34

SHIPPED TO AND DESTINATION above

DATE SHIPPED 1/12/34

CAR INITIALS AND NO.

HOW SHIPPED AND ROUTE Old Dominion S. S. Norfolk - N&W - Pa - COW at Chicago, Ill.

TERMS NET CASH 30 DAYS OR 2 % FOR PAYMENT MAY BE TEN DAYS FROM REFERENCE Apr. 1, 1934

FROM Brooklyn, N. Y. PREPAID OR COLLECT

F. O. B. " carload frt. equlized with Chicago

Package Numbers	Case Capacity	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
54/112 119/210	152/200	30,400	gr. DOUBLE LACQUERED "STAINTUF" CROWNS gr. ALL ABOVE CROWNS HAVE LINERS: REGULAR COMPOSITION CORK DISCS 9/1st and "STAINTUF" ALUMINUM CENTER SPOT	.19	5776 00	
			Allowance of difference in freight between New York to St. Joseph and Chicago to St. Joseph - 37,000 lbs. per 100 lbs.	.30	111 84	
			Upon shipment of the above gr. the M. K. Coets Brewing Co. will be entitled to a rebate of 1/2¢ per gross not only upon this quantity, but also upon the carload shipped on May 27, 1933; all of this in accordance with agreement of June 1, 1933			5664 76 Less 2 149 65 5167 11
			B/L enclosed			Less 2% Disc.

Less 2% Disc.

RECEIVED JAN 15 1934 GOETZ

1567

1811

FERDINAND GUTMANN & CO.

BUSH TERMINAL No. 19. 39TH ST. & 2ND AVE.

BROOKLYN, NEW YORK

ORDER NO. & DATE
REQUISITION NO.
CONTRACT NO. 6/6/34

INVOICE DATE May 21, 1934
OUR ORDER NO. C-3235

SOLD TO

M. K. Goetz Brewing Co.
St. Joseph
Mo.

SHIPPED TO AND DESTINATION Above
DATE SHIPPED 5/21/34
CAR INITIALS AND NO.
HOW SHIPPED AND ROUTE Old Dom. S/S-Newport News-C&O-Pa-C.G.N. at Chicago
TERMS: NET CASH 30 DAYS OR 2 % FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE

FROM Brooklyn, N. Y.
F. O. B. New York, N. Y.
PREPAID OR COLLECT? Collect
frt. equalised with Chicago

FOR CUSTOMER'S USE ONLY

REGISTER NO. | VOUCHER NO.
F. O. B. CHECKED
TERMS APPROVED | PRICE APPROVED
CALCULATIONS CHECKED
TRANSPORTATION
FREIGHT BILL NO. | AMOUNT
MATERIAL RECEIVED
DATE | SIGNATURE | TITLE
SATISFACTORY AND APPROVED
ADJUSTMENTS
ACCOUNTING DISTRIBUTION
ADMITTED | FINAL APPROVAL

Package Numbers	Cases Cartons	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
7263 1/150	150/200	30,000	gr. DOUBLE LACQUERED CROWNS gr	.22	6600 00	
			"STAYSTUK" ALUMINUM CENTER SPOT AND COMPOSITION CORK			
			Allowance of difference in freight between Chicago and St. Joseph and Brooklyn and St. Joseph - 37,548 lbs. @ per 100 lbs	.29	108 89	
						6491 11
			B/L ENCLOSED 13 d/f Bill Lading Less 2% Dis			1298-
						6361 89

1568

1812

FERDINAND GUTMANN & CO.

BUSH TERMINAL No. 19. 39TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

ORDER NO. & DATE 11/5/34
REQUISITION NO.
CONTRACT NO. 4/6/34

INVOICE DATE Nov. 6, 1934
OUR ORDER NO. C-5411

SOLD TO

M. K. Goetz Brewing Co.
St. Joseph
Mo.

SHIPPED TO AND DESTINATION Above
DATE SHIPPED 11/6/34
CAR INITIALS AND NO.
HOW SHIPPED AND ROUTE Old Dom. to Norfolk, N.&W., Pa., C.G.W. at Chicago
TERMS NET CASH DATE OR 2% FOR PAYMENT WITHIN [illegible] DAYS FROM INVOICE DATE

FROM Brooklyn, N. Y.
F.O.B. New York, N. Y.
PREPAID OR COLLECT? Collect
Freight equalized with Chicago

FOR CUSTOMER'S USE ONLY 44x

REGISTER NO. | VOUCHER NO.
P. O. B. CHECKED
TERMS APPROVED | PRICE APPROVED
CALCULATIONS CHECKED
TRANSPORTATION
FREIGHT BILL NO. | AMOUNT
MATERIAL ACCEPTED
DATE | SIGNATURE | TITLE
SATISFACTORY AND RECEIVED
ADJUSTMENTS
ACCOUNTING DISTRIBUTION
AUDITED | FINAL APPROVAL

Package Numbers	Case Cartons	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
#7300 1/145	145/200	30,000	gr. DOUBLE LACQUERED CROWNS "STAINLESS" ALUMINUM CENTER SPOT AND COMPOSITION CORK	gr. .22	6600 00	
#7387 55/72	80/80					
	145 Cases 80 Cartons		ALLOWANCE OF DIFFERENCE IN FREIGHT BETWEEN CHICAGO AND ST. JOSEPH AND BROOKLYN TO ST. JOSEPH - 37,[illegible] lbs. @ per 100 lbs.	.30	112 66	
			B/L ENCLOSED			6487 34 12774 6357 60

134.4 Billing Less

Less 2% Disc

[fol. 1813] DEFENDANT'S EXHIBIT VVV

(Letterhead of)

Goetz Company, St. Joseph, Mo.,

August 22, 1928.

Ferdinand Gutmann Co., Bush Terminal #19, 39th St. & 2nd Ave., Brooklyn, N. Y.

GENTLEMEN:

We have to-day made further test with the aluminum center crowns you sent us. We took 500 crowns which had gone through our shaker, wherein the spots seemed securely fastened and put them in an Adriance Crowner and run the machine for ten minutes without crowning any bottles, in order to ascertain what effect the agitation in hopper would have on discs.

After removing same from machine we found three dozen crowns that the discs came off entirely and fully fifty percent of the rest were loose and hanging at one point only.

You are no doubt already aware that the discs falling off of crowns would choke up crowner chute and stop the operation of the crowner.

Yours very truly, M. K. Goetz Brewing Co., (Signed) A. N. Ketterer, Supt. Btl. Dept.

ANK/ELA.

[fol. 1814] (Letterhead of)

M. K. Goetz Brewing Co., St. Joseph, Mo.

August 23, 1928.

Ferdinand Gutmann & Co., Bush Terminal No. 19, 39th St. & 2nd Ave., Brooklyn, N. Y.

GENTLEMEN:

On my return I found your letter of August 13th and also that it has been taken care of and that you received the required information as to our requirements, also that you should ship on September 1st a car consisting of one half regular cork disc crowns and one half of aluminum centered crowns. This was quite correct before we received and tried

out the case of aluminum centered caps which you sent as a trial lot. It is extremely fortunate that this sample lot was shipped now before you proceeded further with the making of more caps like that.

Mr. Ketterer wrote you at once on the 21st and again on the 22nd and in these letters informed you very thoroughly and correctly as to the results we had with these aluminum centered crowns.

In order to call your attention to the defects at once the following nightletters were sent to you on Tuesday and Wednesday evenings:

August 21st "Aluminum center crowns not usable because many aluminum discs fall out in crown shaker are sending you some of them letter follows"!

[fol. 1815] August 22nd "In using crowns which retained aluminum discs during shaker process more discs were loosened in adriance crowner your system of fastening aluminum to cork entirely wrong (stop) furthermore the aluminum itself is much too heavy almost three times as heavy as aluminum used by others Gutmann promised thinner quality"

These wires and letters have no doubt explained to you that these caps (as you are now making them) are absolutely unsatisfactory and the writer sincerely trusts that you at once stopped their further production.

Referring to the 2nd part of the last wire we find the thickness of the aluminum you used entirely too great. So far as we could we calibered it and find it to be about 0.0085", while the aluminum discs Mr. F. Gutmann submitted in his several trial lots calibers ca. 0.0035" only. We even objected to this and in one of Mr. Gutmann's letters to the M. K. Goetz Brewing Co. or to the writer you will find that he agreed that a thinner aluminum must be used. Instead of that the thickness of the aluminum in your trial lot is between 2 and 3 times greater.

Other manufacturers use aluminum of ca. 0.003" thickness and Mr. E. A. Siebel suggested that even this should be and was in fact being reduced somewhat more.

At any rate your aluminum is entirely too heavy and will result in a great many of the discs being cut thru by the edges of the bottles during the crowning process.

The writer incloses 3 Aluminum discs, one of the smaller ones with several holes punched into it is one of the ones you [fol. 1816] sent now, the other small one from a Bamberger Kraus crown. The large one is from one of the crowns submitted by your Mr. Gutmann, in one of the several test lots of several months ago.

By closely examining these discs you will find that the thickness of your last lot is entirely too great.

The result with this sample lot leaves the matter as it was several months ago and we are very much disappointed indeed and await your explanation and further advices in the premises at the earliest possible date.

In your letter of the 14th in reply to the writer's letter of the 11th you show deep concern in the manner your regular plain cork disc crowns affect the "taste of our products". The writer—during his recent trip—had several occasions to further prove the seriousness of the situation caused by the "plain cork discs".

We were in hopes that the "aluminum centered caps" would change this condition and are still of the opinion that they will do this, but the new condition—created by the unsatisfactory results with your trial lot—is much more than disappointing.

We sincerely trust that you will be enabled to at once remedy the several defects and shortcomings of your aluminum centered crowns and expect to hear from you at once. As we cannot safely use the "regular cork discs" either,—we may be compelled to soon decide on some other means to improve the condition.

Yours very truly, M. K. Goetz Brewing Co., per F. W. Boldenweck, Supt.

FWB/HLC.

[fol. 1817] P. S.—In reference to the Bamberger & Krause, also to the aluminum centered crowns finished by the C. C. & Seal Co. will say that the discs did not loosen during the crown "shaker" period nor during the time the crowns were in the hopper of the Adriance crowner.

In fact none of the discs became loose or came off.

DEFENDANT'S EXHIBIT WWW

(Letterhead of)

E. I. du Pont de Nemours & Company, incorporated, Parlin, New Jersey, U. S. A.

May 12, 1932.

Ferdinand Gutmann & Co., Bush Terminal No. 19, 39th St. and 2nd Ave., Brooklyn, N. Y.

Attention of Mr. J. B. Eisen

GENTLEMEN:

This will acknowledge the receipt of your letter of May 6th requesting that we send you a sample of our #4620 Thermoplastic Cement, and in accordance with your request we are sending you by prepaid parcel post, without charge, a 1-½ pint can of this material for trial.

[fol. 1818] This cement may be applied by brushing, dipping, spraying or roller coating. It will be found light in color and deposits a clear, nearly colorless film. After applying the cement to the objects which are to be joined, the film should be allowed to dry from 3 to 20 minutes at room temperature, depending on the material coated, and when the solvents have completely evaporated, the objects should be brought together and heated with a hot press, roll, or flat-iron. An ordinary electric flat-iron will suffice and a temperature of between 130 to 150° C. may be employed with a little pressure. The exact heating time, of course, depends on the conductivity of the material through which the heat must pass to fuse the cement.

In cementing most materials where the cement would be applicable, the heat need be applied only momentarily, and on cooling it will set up quickly and will develop a strong bond between the cemented objects. Materials coated with 4620 Thermoplastic Cement may be stored indefinitely without destroying the adhesive properties of the Cement which is only very slightly tacky and the tackiness will not increase unless it is subjected to temperatures above 50° C. (122° F.). It is a waterproof product and can be used advantageously wherever a non-aqueous cement is required, and will be found to have excellent flexibility and adhesion to a wide range of articles.

Our 4620 Thermoplastic Cement is priced at $1.80 per gallon in 50 gallon returnable drums, and is also available in 5 gallon cans at $2.00 per gallon, f. o. b. delivered in Brooklyn.

We hope that your tests with the 4620 Thermoplastic Cement will prove satisfactory and that as a result of them, [fol. 1819] we will be permitted to supply you with this item regularly. As soon as you have had an opportunity to fully demonstrate it, we would appreciate receiving a report from you and if there is any further assistance needed, kindly do not hesitate to call upon us for it.

Yours very truly, J. W. Cleaveland, Eastern Manager Industrial Sales, by H. F. Hall.

HFH:LO.

DEFENDANT'S EXHIBIT XXX

Crown Shipments 1928-1934

	Without Center Spots	With Center Spots	Total
1928	765,717 gross	71,328 gross	843,045 gross
1929	369,154 "	386,689 "	755,843 "
1930	241,585 "	320,748 "	562,333 "
1931	127,556 "	392,480 "	520,036 "
1932	26,550 "	304,801 "	331,351 "
1933	133,948 "	847,834 "	981,782 "
1934	36,288 "	664,101 "	700,389 "

[fol. 1820] DEFENDANT'S EXHIBIT ZZZ

(Letterhead of)

The Crown Cork and Seal Company, Baltimore, U. S. A.

December 10th, 1928.

Ferdinand Gutmann & Co., 39th St. & 2nd Ave., Brooklyn, New York.

GENTLEMEN:

As requested in yours of the 6th, we are preparing to send you samples of our regular Serax composition disc, and also samples of our Canax composition disc.

We shall be pleased indeed to hear from you further after making the necessary tests.

Very truly yours, (Signed) J. I. Brown.

JIB: G.

(Billhead of)

The Crown Cork and Seal Co., Baltimore, Maryland, U. S. A.

No. 51281.
12/7/25.
Your order 12/6/28.

Sold to Ferdinand Gutmann & Co., Bush Terminal No. 19, 39th St. & 2nd. Avenue, Brooklyn N. Y.

Attention Mr. Samuel Cohn

5 Gr. Serax Discs
5 Gr. Canax Discs
Samples. No Charge

Acknowledgment only

(Here follow 7 photos, side folios 1821-1827)

1574A

1821

DEFENDANT'S EXHIBIT C C C C

NEW YORK TESTING LABORATORIES
80 WASHINGTON STREET
NEW YORK
BOWLING GREEN 9-5055-6

Analyses - Tests - Inspections

REPORT OF PHYSICAL TESTS

MATERIAL Springs

SUBMITTED BY Ferdinard Gutmann & Co.
36 to 37th St. & 14th Ave.
Brooklyn, N.Y.

Compression Test on Springs

Laboratory Number	X-67555	X-67556
Specimen Number	Heating Plunger Spring	Collecting Drum Spring
Dimensions		
Area sq. in.		
Dimensions after Fracture	Free Ht. 2.7"	Free Ht. 3-3/4"
Fractured Area		
Yield Point. lbs., actual		
Maximum Load, lbs., actual	Deflection Load	Defection Load
Elongation in inches	to 1-3/4" 614.3 grams or 1 lb. 5.67 oz.	to 2-3/4" 14 lbs. 12 oz.
Yield Point, lbs. per sq. in.		
Tensile Strength, lbs. per sq. in.		
Per cent Elongation in inches		
Per cent Reduction of Area		
Character of Fracture		
Brinell Hardness		
Rockwell Hardness		

6737

United States District Court
Eastern District of New York
Exhibit CCCC in evidence
Date NOV-17 '37
Clerk
Deputy Clerk

Tests by G. J. Horvitz
Technical Director. Date May 20, 1935. Witnessed by

BLANK

PAGE

1574 B
1922

DEFENDANT'S EXHIBIT D D D D

~~SALES COPY~~ ORDER.

United States District Court
Eastern District of New York
Exhibit DDDD in evidence
Date Nov 17/31
Clerk
Deputy Clerk

SOLD TO Ferdinand Guttman & Co.
ADDRESS Bush Bldg. #19
Brooklyn, N. Y.
DATE ~~Feb. 17, 1930~~ TERMS

F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	Bush Truck		

QUANTITY	DESCRIPTION	PRICE	EXTENSION
100	Gross Dry Gingerale, comp cork, for paper spotting		
	Please paper spot these crowns and advise us when ready.		
	CROWN CAP MFG. CO.		
	X8694		

CROWN CAP MANUFACTURING CO.
201-37TH ST., BROOKLYN, N. Y.

SALES COPY

DATE BILLED

SOLD TO Ferdinand Guttman & Co.
ADDRESS Bush Building # 19
Brooklyn, N. Y.
DATE Feb. 24, 1930 TERMS

F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	Truck		

QUANTITY	DESCRIPTION	PRICE	EXTENSION
100	Gross Double Lacquer crowns for paper spotting. Composition cork		
	X8706		

CROWN CAP MANUFACTURING CO.
201-37TH ST., BROOKLYN, N. Y.

BLANK

PAGE

DEFENDANT'S EXHIBIT E E E E

1823

SALES COPY

United States District Court
Eastern District of New York
Exhibit EEEE in evidence
Date Nov 17 31
Clerk
Deputy Clerk

SOLD TO Ferdinand Gutmann & Co.
ADDRESS Bush Building #19
Brooklyn, N. Y.
DATE August 6, 1930 TERMS
F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	Truck		

QUANTITY	DESCRIPTION	PRICE	EXTENSION
200	Gross ALPINE DRY GINGERALE		
400	" MULLEN'S LIME SODA		
	Please paper spot these crowns and return to us as quickly as possible.		
	CROWN CAP MFG. CO.		
	H.V.F.		
	C 2418		

CROWN CAP MANUFACTURING CO.
201–37TH ST., BROOKLYN, N. Y.

SALES COPY

DATE BILLED

SOLD TO Ferdinand Guttman & Co.
ADDRESS 39th Street and 2nd Ave.
Brooklyn, New York
DATE July 10, 1930 TERMS
F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	Bush Truck		

QUANTITY	DESCRIPTION	PRICE	EXTENSION
50	Gross Double Lacquer crowns.		
	Please paper spot these crowns and return to us as soon as possible.		
	CROWN CAP MANUFACTURING CO.		
	HF.		
	C 2389		

CROWN CAP MANUFACTURING CO.
201–37TH ST., BROOKLYN, N. Y.

15744

1824

SALES COPY

DATE BILLED

SOLD TO Ferdinand Gutmann & Co.
ADDRESS Bush Building #19
Brooklyn, N. Y.
DATE July 6, 1930 TERMS Net F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	Bush Truck		

QUANTITY	DESCRIPTION	PRICE	EXTENSION
50	Gross Double Lacquer crowns. Please paper spot these crowns and return to us as soon as possible. CROWN CAP MANUFACTURING CO. C 2349 HF		

CROWN CAP MANUFACTURING CO.
201-97th ST., BROOKLYN, N. Y.

John C. Moore Corporation, Rochester, N. Y. Blanks and Forms to Insure, Cost Printed Bill. (Page) A

SALES COPY

DATE BILLED

SOLD TO Ferdinand Guttman Co.
ADDRESS Bush Terminal # 19
Brooklyn, N. Y.
DATE June 9th, 1930 TERMS F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	BUSH TRUCK		

QUANTITY	DESCRIPTION	PRICE	EXTENSION
100	Gross Massasoit Gingerale Crowns Please paper spot these crowns and return to us. Crown Cap Mfg. Co. C 2360 5 copies		

CROWN CAP MANUFACTURING CO.
201-97th ST., BROOKLYN, N. Y.

John C. Moore Corporation, Rochester, N. Y. Blanks and Forms to Insure, Cost Printed Bill. (Page) A

1574 E

1825

SALES COPY

DATE BILLED

SOLD TO Ferdinand Guttman & Co.
ADDRESS Bush Building #19
Brooklyn, N.Y.
DATE May 7, 1930 TERMS F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	BUSH TRUCK		

QUANTITY	DESCRIPTION	PRICE	EXTENSION
1000	Gross Chapman's Old Kibby Gingerale crowns Please paper spot these crowns and return to us. CROWN CAP MANUFACTURING CO. HF X7137		

CROWN CAP MANUFACTURING CO.
201-37TH ST., BROOKLYN, N. Y.

DATE BILLED

~~SALES COPY~~ ORDER.

SOLD TO Ferdinand Guttman & Co.
ADDRESS Bush Buildign #19
Brooklyn, N. Y.
DATE ~~April 8, 1930~~ TERMS F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN

QUANTITY	DESCRIPTION	PRICE	EXTENSION
100	Gross Cascade Gingerale to be paper spotted. CROWN CAP MFG. CO. X8771		

CROWN CAP MANUFACTURING CO.
201-37TH ST., BROOKLYN, N. Y.

1574F

1826

~~SALES COPY~~ ORDER

DATE BILLED

SOLD TO Bush Building #19
ADDRESS Ferdinand Guttmann
Brooklyn, N. Y.
DATE March 28, 1930 TERMS F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	BUSH TRUCK		
QUANTITY	DESCRIPTION	PRICE	EXTENSION
1065	Gross NEW ENGLAND DRY Crowns. Comp. Cork.		
	Please paper spot this lot for us. Kindly do not stencil cases when returning them to us.		
	CROWN CAP MFG. CO.		
		X8758	

CROWN CAP MANUFACTURING CO.
201-37TH ST., BROOKLYN, N. Y.

SALES COPY

DATE BILLED

SOLD TO Ferdinand Guttman & Co.
ADDRESS Bush Building #19
Brooklyn, N. Y.
DATE October 2, 1930 TERMS F. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	Bush Truck		
QUANTITY	DESCRIPTION	PRICE	EXTENSION
200	Gross Double Lacquer,		
	Please insert paper spot in these crowns and return to us as quickly as possible.		
	Crown Cap Mfg. Co.	X9223	
	HVF		

CROWN CAP MANUFACTURING CO.
201-37TH ST., BROOKLYN, N. Y.

1574G

1827

PURCHASE ORDER
or
CROWN CAP MFG. CO., Inc.
201 - 37th Street, Brooklyn, N. Y.

This number must appear on all invoices

No 226

Date Mar. 3

Ship

Terms

Ferdinand Guttman Co.
Bush Building #19
Brooklyn, New York

Please paper spot the following crowns to be delivered to you:

Gross Double Lacquer

X9330

Crown Cap Manufacturing Co., Inc.
By H. Frei
All orders must be signed

(OVER)

PURCHASE ORDER
or
CROWN CAP MFG. CO., Inc.
201 - 37th Street Brooklyn, N. Y.

This number must appear on all invoices

No 683

Date June 27

Ship

Terms

To Ferdinand Guttman Co.
Bush Building #19
Brooklyn, New York

Please insert paper spots and return to us

400 Gross Mullen's Lime Soda X9546
200 Gross Double Lacquer
[illegible] Gross Pale Dry Gingerale X9547

Crown Cap Manufacturing Co., Inc.
By H. Frei
All orders must be signed

(OVER)

BLANK

PAGE

[fols. 1828-1829] DEFENDANT'S EXHIBIT FFFF

(Letterhead of)

Crown Cap Manufacturing Co., 201 Thirty-Seventh Street, Brooklyn, N. Y.

April the 23rd, 1929.

Ferdinand Guttman & Co., Bush Terminal #19, Brooklyn, New York.

GENTLEMEN:

Please enter our order for, Tin Foiling approximately 1,000 gross of decorated composition cork crowns, which we will have ready to deliver to you in about a week.

Very truly yours, Crown Cap Manufacturing Co.,
W. M. Fries.

WF:Q.

BLANK

PAGE

DEFENDANT'S EXHIBIT GGGG

1576

1830

BA-665—6M—9-5-16.

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL. NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

№ 16764

544

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH.

S. O. No. 2606 NEW YORK, N. Y. Nov. 20, 1917.

As of Nov 30, 1917.

SOLD TO Kalak Water Co.,

25 City Hall Place, New York City

YOUR ORDER No. Expired SHIPPED VIA Koh

TERMS—60 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT. REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND. CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

2051	Gross Dec. H. G. Crowns Light Center Tinfoil #22022	$.4739	971	97

OK Success

EXPIRED FUTURE DELIVERY ORDER
NOV 30 1917

6737/
United States District Court
Eastern District of New York
Exhibit GGGG
in evidence
Date Nov 1 '23
Clerk
Deputy Clerk

OR CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE; THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

BA-665—6M—9-5-16.

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL. NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

№ 16639

505

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH. 304 E. 22nd STREET

S. O. No. 2368 NEW YORK, N. Y., Oct. 29, 1917.

As of Aug. 31. 1917.

SOLD TO Kalak Water Company

23 City Hall Place, New York City.

YOUR ORDER No. Exp. SHIPPED VIA Koh

TERMS—60 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT. REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND. CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

35	Gross dec H. Grade Cr., Tin foil center light Kalak #22022	0.4126	14	44

OK Success Mdse

We hereby guarantee that the goods covered by this invoice were produced in manufacture in accordance with the Federal Child Labor Act of September 1st 1916
THE CROWN CORK AND SEAL COMPANY

EXPIRED FUTURE DELIVERY ORDER
AUG 31 1917

OR CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE; THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

1831 1577

BA-315—4 M—6-20-16.

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

No 15321

The Crown Cork and Seal Company,

OF BALTIMORE.

New York BRANCH.

387

S. O. No. 793 August 9th, 1917.

SOLD TO Kalak Water Co., Inc.

19 Bush Terminal, Brooklyn, N.Y.

YOUR ORDER No. Mail SHIPPED VIA Kob.

TERMS—30 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM BRANCHES ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 10 DAYS AFTER RECEIPT OF GOODS.

187	Gross Dec. H. G. Crowns #22022	@ $.3826 *	71.	55

CORRECTED

O/K Dec

ON CROWN SHIPMENTS TO BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE; THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS SHIPPED, WILL BE PAID OR CREDITED TO YOU FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

BA-315—4 M—6-20-16.

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

No 13545

Kalak

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH. 304 E. 20th STREET

S. O. No 10693 NEW YORK, N. Y., June 1, 1917.

SOLD TO Kalak Water Co.

23-27 City Hall Place, N. Y. C.

YOUR ORDER No. Mail SHIPPED VIA Kob.

TERMS—30 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 10 DAYS AFTER RECEIPT OF GOODS.

200	Gross Dec. High Grade Cr. Tin Foil Center Light #22022	@.3826	$ 76	52

O/K Dec

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE; THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO YOU FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

16

1578 1832

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

№ 13930

289

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH. 204 E. 23rd STREET

S. O. No. 11067 NEW YORK, N. Y., June 18, 1917.

SOLD TO Kalak Water Co., Inc.

23 City Hall Place, N. Y. C.

YOUR ORDER No. Mail SHIPPED VIA Kob.

TERMS—60 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

200	Gross Dec. High Grade Cr.	@.3826	$ 76	52
	Tin foil Center Light Kalak #22022			
	Ship to Kalak Water Co., Inc.			
	19 Bush Terminal,			
	Bklyn, N. Y.			

OK Spencer

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE, THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

№ 15381

350

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH. 204 E. 23rd STREET

S. O. No. 793 NEW YORK, N. Y., August 9th 1917.

SOLD TO Kalak Water Co. Inc.

19 Bush Terminal Brooklyn, N.Y.

YOUR ORDER No. Mail SHIPPED VIA Kob.

TERMS—60 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

187	Gross Dec. H. G. Cr.	@.3826	$ 71	85
	#22022			

OK Spencer

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE, THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

1833 1579

BA-465—6M—9-5-16.

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

No. 14674

333

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH. 234 E. 23rd STREET

S. O. No. 68 NEW YORK, N. Y., July 16th 1917.

SOLD TO Kalak Water Co.

25 City Hall Place New York, City.

YOUR ORDER No. Mail. SHIPPED VIA Koh.

TERMS—60 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

200	Gross Dec. H. G. Crowns. #22022	@.4126	$82	52

Shipped to Kalak Water Co. Bush. Terminal
Brooklyn, N.Y.

Ck Received

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE; THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

BA-465—6M—9-5-16.

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

No. 15876

137

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH. 234 E. 23rd STREET

S. O. No. 1296 NEW YORK, N. Y., August 24th 1917.

SOLD TO Kalak Water Co.

23 City Hall Place New York City.

YOUR ORDER No. Expired SHIPPED VIA Koh. Prepaid.

TERMS—60 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

187	Gross Dec. H.G. Cr. #22022	@.3826	$ 71	55	
2007	Gross Dec. H.G. Cr. #22022	@.4126	$826	09	
	Cartage		2	20	$901 84

Ck Received

EXPIRED FUTURE DELIVERY ORDER
AUG 31 1917

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE; THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

1580

DEFENDANT'S EXHIBIT H H H H

1834

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS, AND OTHER CAUSES BEYOND OUR CONTROL
ALL MATERIAL SHIPPED F.O.B. WILMINGTON, DELAWARE

WILMINGTON, DEL., U. S. A. March 31, 1921.

Kalak Water Co.,

150 6

33-37 City Hall Place, New York City

Bond Manufacturing Corporation

YOUR ORDER NO.

SHIPPED VIA Penna. R. R. to Kalak Water Co., Building #19 Bush Terminal 36th St. Station, Brooklyn, N. Y.

TERMS: 30 DAYS NET

		Gross Plain	BOND-CROWNS @			
		Gross Lacquered	BOND-CROWNS @			
		Gross Plain Embossed	BOND-CROWNS @			
		Gross Lacquered Emb'd	BOND-CROWNS @			
3 Bxs.	600	Gross Decorated "KALAK"	BOND-CROWNS @	48½	291 00	291 00

WITH BEST GRADE NATURAL CORK & TIN CENTERS

E7371
United States District Court
Eastern District of New York
Exhibit H.H.H.H in evidence
Date Nov-17-31
Clerk
Deputy Clerk

APR 30 1921

1835 1581 DEFENDANT'S EXHIBIT 1111

BA-165—5M—12-2-15.

THE PERFORMANCE OF ALL AGREEMENTS ON OUR PART IS CONTINGENT UPON STRIKES, WARS, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL.

261 E

No 308

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH. 334-336 W. 44th STREET

S. O. No. 3660

NEW YORK, N. Y. July 23rd, 1920

SOLD TO Kalak Water Co.,
19 Bush Terminal,
New York City
N. Y. County

Remittance must be made within ... days from date of this invoice to ... the Payer to Cash Discount.

YOUR ORDER No. Mail SHIPPED VIA Wagon

TERMS—30 DAYS, NET, OR 2% DISCOUNT FOR CASH IN 10 DAYS.
ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

400	Gross Private Dec. High Grade Crowns Name Lt. Tin Foil Centre #22022 2/200 This Crown Shipment Applies Against Your F. D. O. Dated 8/6 for {Open Stock / Priv. Des.} Crowns which expires 8/30	.4550	182 00

PAID OCT 27 1920

E 7371
United States District ...
Eastern District of New ...
Exhibit ... in evide...
Date ...
Deputy

We hereby guarantee that the Goods covered by this Invoice were produced or manufactured in accordance with the Federal Child Labor Act of Sept. 1st, 1916. THE CROWN CORK AND SEAL COMPANY.

BA-165—5M—12-2-15

No 3281

THE PERFORMANCE OF ALL AGREEMENTS ON OUR PART IS CONTINGENT UPON STRIKES, WARS, ACCIDENTS, AND OTHER CAUSES BEYOND OUR CONTROL.

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH. 334-336 W. 44th STREET

331 E

S. O. No. 4036

NEW YORK, N. Y. August 31st, 1920

SOLD TO Kalak Water Co.,
27 City Hall Place,
New York City
N. Y. County

Remittance must be made within ... days from date of this invoice to ... the Payer to Cash Discount.

YOUR ORDER No. Phone SHIPPED VIA Tait

TERMS—30 DAYS, NET, OR 2% DISCOUNT FOR CASH IN 10 DAYS.
ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

1928	Briv. Dec. High Grade Crowns Three Color Tin Foil #22022 This Crown Shipment Completes Your F. D. O. Dated 11/26 for 5000 Gross Crowns Expiring 8/31	.4550	877 24 377 24 500 00 250 00 250 00 500 00

We hereby guarantee that the Goods covered by this Invoice were produced or manufactured in accordance with the Federal Child Labor Act of Sept. 1st, 1916. THE CROWN CORK AND SEAL COMPANY.

DEFENDANT'S EXHIBIT J J J J 1582 1836

CABLE ADDRESS NAMTUG-NEW YORK
TELEPHONE CONNECTION

All claims must be made within five days from receipt of invoice

Ferdinand Gutmann & Co.

134-140 WEST 29TH STREET,

MANUFACTURERS AND DEALERS LEAGUE 1918 MEMBER CITY AND STATE OF NEW YORK

New York. December 16, 1918. 191

Sold to Kalak Water Company,

Terms 30 days net 25 - 27 City Hall Place,

Shipped via See below. City.

Goods shipped at purchaser's risk.

402 via

5	cases each 200 gross		
1000	gross 3 color spec. dec. crowns gro. .44	440	00
	Kalak as per sample submitted, specially paraffined natl. cork discs. inside lacquered.		
	Case #65700/4		
	A/C Contract		
	DEL'D TO BUSH TERMINAL BUILDING #19 BROOKLYN.		

OWING TO THE ADVANCE OF RAW MATERIALS ALL PREVIOUS PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

E7371
United States District Court, Eastern District of New York
Plaintiff's Exhibit No. in evidence
Date 2-27-31
Clerk
Deputy Clerk

1583

1837

CABLE ADDRESS SANTUS-NEW YORK
TELEPHONE CONNECTION

All claims must be made

30 days net, or 1% for cash in 10 days
No greater cash discount allowed.
No discount allowed after ten days.

Ferdinand Gutmann & Co.

134-140 West 29th Street,

MANUFACTURERS AND DEALERS 1919 MEMBER CITY AND STATE OF NEW YORK

New York, February 1, 1919 191

Sold to Kalak Water Co.,

Terms 30 days net

23 City Hall Place,

Shipped via See Below.

Goods shipped at purchaser's risk.

J 16

City.

via

	5	cases			
	980	gross 3 color spec dec crowns "Kalak" Inside lacquered specially paraffined natl. cork discs 4/200 gross cases #67076/79 1/180 " case #67080 completes contract Deliver to Bush Terminal Building #19, Brooklyn F. O. B. Bush Terminal	gross 44¢	431	20

OK P

OWING TO THE ADVANCE OF RAW MATERIALS ALL PREVIOUS PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

MAR 14 1919

1584

1838

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

"YOUR INTERESTS INTEREST US"

Sold to KALAK WATER CO.
23-27 CITY HALL PLACE.
CITY.

709

Terms 30 days net
Payable in N.Y. Exchange.

Goods shipped at purchaser's risk.

REMOVED TO 134-140 WEST 29TH STREET, New York, July 16, 1919.
55 FIFTH AVE.

Shipped to to Bldg #19 Bush Terminal

1	case.		
100	gross double lacquered crowns gross 31¢	31	00
	high grade natural cork discs		
	1 case #80653		
	F. O. B. BUSH TERMINAL		

PAID OCT 10 1919

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of Goods.

BLANK

PAGE

[fol. 1839] DEFENDANT'S EXHIBIT LLLL

(Letterhead of)

Schwarz Laboratories, Inc.,

Brewery Consultants and Engineers, 202 East 44th Street, New York

July 24, 1933.

Ferdinand Gutmann & Co., Bush Terminal, Brooklyn, New York.

Attention Mr. Jesse Gutmann

GENTLEMEN:

With reference to the enclosed report, it is definitely our opinion that there is no difference between the two crowns submitted to us for examination. This statement, of course, does not apply to the methods of manufacture involved in the making of these two crowns; it is quite possible that there may be differences of which we know nothing. Our statement that there is no difference between the two crowns is based on the result obtained in the practical test noted on the report.

On completion of the test these samples were examined and tasted by three individual chemists and brewing technologists, who had no knowledge of the question involved. It was their definite opinion in each instance that there was no difference in the appearance of the two crowns involved, nor was there any difference in the taste, odor, or appearance of the beer.

[fol. 1840] We sincerely hope that these tests give you the desired information, but if you have any further inquiries please be assured that these will receive our prompt attention.

Always at your service,

Schwarz Laboratories, Inc., (Signed) Herbert A. Schwarz.

HAS: RCG.
Encs.

(Letterhead of)

Schwarz Laboratories, Inc.

Report No. 212967/8

Report of Analysis

The Sample of Crowns
Received 7/6/33
Marked .....

Has been examined with the following results:

All bottles contained the same beer. Capped with the crowns as indicated below. Pasteurized in an inverted position. After pasteurization, part of the bottles was held in the inverted position and part in an upright position for 14 days.

Respectfully submitted, Schwarz Laboratories, Inc.,
W. S. H. (Seal.)

To Ferdinand Gutmann & Co., 39th St. & 2nd Ave., Brooklyn, New York.

New York July 24, 1933.

[fol. 1841] Ferdinand Gutmann & Co.

July 24, 1933.

	Appearance at beginning	Appearance at end	Odor	Taste	Condition of Crown	Sediment
Blank Beer	Brilliant	Brilliant	Normal	Pure		None
Beer with Gerst cap upright	Brilliant	Brilliant	Normal	Pure	No apparent change. No discoloration. No softening.	None
Beer with Gerst cap inverted	Brilliant	Brilliant	Normal	Pure	No apparent change. No discoloration. No softening.	None
Beer with Utica cap Upright	Brilliant	Brilliant	Normal	Pure	No apparent change. No discoloration. No softening.	None
Beer with Utica cap Inverted	Brilliant	Brilliant	Normal	Pure	No apparent change. No discoloration. No softening.	None

Respectfully submitted,
Schwarz Laboratories, Inc.
WSH

(Here follows 1 photo, side folio 1842)

1586A
1842

DEFENDANT'S EXHIBIT M M M M

DU PONT

E. I. DU PONT DE NEMOURS & COMPANY

CHEMICAL PRODUCTS

PARLIN, N. J.,

SOLD TO FERDINAND GUTMANN & CO
BUSH TERM 19
39TH ST & 2ND AVE
BROOKLYN NY

DATE K 4/5/33 NO. 61708

SHIPPED TO SAME

DESTINATION 1-10-30

TERMS: FROM DATE OF INVOICE

M. O.	CUSTOMER'S ORDER NO.	SALESMAN
C31018	3/31	GLENN 5%
SHIPPED FROM / VIA	DATE SHIPPED	BILL OF LADING
01	4/4/33	
F. O. B.	OFFICE	BUSINESS
DEMD	10 66	31

		UNIT PRICE	AMOUNT
1 GAL 4620 THERMOPLASTIC CEMENT	1S	2.00	2.00
5 GAL CAN PRICE			
1 BOX 10#			

67311
United States District Court
Eastern District of New York
M.M.M.M.
Of Exhibit in evidence
Date Nov 14 31
Clerk
Deputy Clerk

Laboratory Expense

APR 7 1933

17411

PLEASE REMIT TO TREASURER'S OFFICE, WILMINGTON, DELAWARE. INTEREST CHARGED ON ALL BILLS NOT PAID AT MATURITY.
READ IMPORTANT NOTICE ON REVERSE SIDE
WE PREFER SETTLEMENT BY CONVENIENT BY A CHECK PAYABLE AT PAR THROUGH FEDERAL RESERVE SYSTEM

BLANK

PAGE

[fol. 1843] DEFENDANT'S EXHIBIT OOOO

Defendant's Interrogatories to Plaintiff and Plaintiff's Answers Thereto

Q. 1. What Claims of each of the patents in suit does plaintiff allege defendant has infringed?

Ans. See Plaintiff's Bill of Particulars.

Q. 2. When was the amalgamation of Crown Cork & Seal of Baltimore City with New Process Cork Co., Inc. effected?

Ans. The Crown Cork and Seal Company of Baltimore City did not amalgamate with New Process Cork Co., Inc. The legal steps were as follows: A New York corporation known as the N. Y. Improved Patents Corporation purchased the assets of The Crown Cork and Seal Company of Baltimore City; thereafter the New Process Cork Co., Inc., and N. Y. Improved Patents Corporation consolidated, forming Crown Cork & Seal Company, Inc., Certificate of Consolidation was filed December 19th, 1927 with the Secretary of State at Albany, New York.

Q. 3. When was the present plaintiff incorporated?

Ans. December 19, 1927.

Q. 4. Were any officers of the plaintiff corporation officers of plaintiff's predecessor, Crown Cork & Seal Company of Baltimore City?

Ans. Yes.

Q. 5. If the answer is yes, give their names?

Ans. F. Erwin Fusting, Edward J. Costa.

Q. 6. Is Wm. Vinson an officer of the plaintiff company?

Ans. Yes.

Q. 7. If so, what office does he hold and what are his duties?

Ans. Vice-President, connected with sales.

Q. 8. Upon what date or dates were the licenses mentioned in the Bill of Complaint and Reply made?

Ans. Attached hereto is a list of the licensees with the [fol. 1844] dates of the license agreements.

Q. 9. Have the terms of the License Agreements since been changed or modified?

Ans. Yes.

Q. 10. In what respects and when?

Ans. The licenses of all licensees, except Truslow & Fulle, were modified by supplemental agreement, copy of which is attached. Further under date of December 19, 1934, Plain-

tiff voluntarily reduced temporarily the royalty terms as shown by letter, copy of which is attached.

Q. 11. Who are the licensees referred to in the Bill of Complaint and the Reply?

Ans. See attached list.

Q. 12. Are any of the licensees, named in answer to Int. 11, the subsidiaries of the plaintiff corporation?

Ans. Yes.

Q. 13. If the answer to Int. 12 is "Yes," give the names of such licensees.

Ans. Western Stopper Co., Inc.

Q. 14. If the answer to Int. 12 is "No," does the plaintiff corporation have any financial interest in the business of any of said licensees.

Ans. No.

Q. 15. If the answer to Int. 14 is "Yes," give the names of such licensees.

Ans. None.

Q. 16. Did the plaintiff corporation authorize the publication of the advertisements in magazines and trade papers as follows:

Western Brewer	p.	Aug. 1934 issue
Brewer & Malster	p.	July 1934 issue
Brewer & Malster	p.	Aug. 1934 issue
Brewer's Journal (Western Brewer)	p.	July 1934 issue
Modern Brewer	p.	Aug. 1934 issue
The Crown	p.	—— —— issue
The Crown	p.	—— —— issue
The Crown	p.	—— —— issue

[fol. 1845] and in what, if any other trade journals or publications advertisements like those above referred to were authorized?

Ans. The following advertisements were authorized:

Western Brewer	Aug.	1934 issue Page 19
Brewer & Malster	July	1934 issue Page 116
Brewer & Malster	Aug.	1934 issue Page 114
Brewers' Journal (Western Brewer)	July	1934 issue Page 13
Modern Brewery	Aug.	1934 issue Inside of back cover.

Substantially corresponding advertisements were also authorized in the following publications in the issues mentioned herein:

American Brewer	July and Aug. 1934 issues
Beverage News	ditto
National Bottlers Gazette	"
National Carbonator and Bottler	"
Western Brewery World	"

Any advertisements appearing in the "Crown of Baltimore," which is the Plaintiff's own publication, under Plaintiff's name, were authorized by Plaintiff.

Q. 18. Did the plaintiff corporation cause to be printed and published a pamphlet entitled "Spot Crowns"?

Ans. Yes.

Q. 19. If the answer to Int. 18 is "Yes," when were such pamphlets first distributed to users of crown caps, how many of such pamphlets have been so distributed and to whom generally?

[fol. 1846] Ans. The booklet entitled "Spot Crowns" was first distributed on or about September 21, 1934; it has been distributed to all those companies whose products are represented in the booklet, and, additionally, to representative or principal users of spot crowns. Approximately 2,000 copies have been distributed.

Q. 20. When did plaintiff or its predecessor, Crown Cork & Seal Company of Baltimore City, first make and sell center spot crowns having a facing disk formed of varnished Express, Kraft or other hard paper having a water finish or of a metal foil secured to the cushion disk of the crown by means of gutta percha or any other water insoluble adhesive material extending throughout the entire surface of the center spot?

Ans. About 1917.

Q. 21. Was a strip of center spot material used on the dates given in answer to Int. 20 in which one surface thereof had bonded thereto a coating of gutta percha?

Ans. No.

Q. 22. Did the plaintiff corporation, or its predecessor Crown Cork & Seal Company of Baltimore City, on or

about May 7th, 1927, or prior thereto, make and deliver for use bottle caps or crowns as described in Int. 20?

Ans. Yes.

Q. 23. If the answer to Int. 22 is "Yes," when and to whom and in what quantities were such crowns or caps delivered?

Ans. Metal foil center spot crowns were made and sold prior to May 7, 1927 detailed sales reports are not available. Paper center spot crowns were not sold prior to May 7, 1927 on which date the first shipment was made to Burroughs Bros., Baltimore, Maryland, totaling ten (10) gross.

Q. 24. Were the caps delivered to the parties above named in answer to Int. 23 charged for?

Ans. Yes.

[fol. 1847] Q. 25. Did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, ever use varnished Express or varnished Kraft paper in bottle closures of any kind prior to 1925?

Ans. Yes.

Q. 26. If the answer to Int. 25 is "Yes," state who furnished such paper?

Ans. Irvington Varnish & Insulator Co., Pittsburgh Insulator Co.

Q. 27. When did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, first manufacture crown Bottle caps having a center spot of varnished paper or of a metal foil, which center spot was adhered to the cushion disk by gutta percha, and in which a strip of gutta percha and a strip of facing material were simultaneously fed in a machine for applying the center spot to the cushion disk?

Ans. In 1917 or 1918; no definite date is ascertainable.

Q. 28. Did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, ever manufacture and sell center spot caps in which the center spot disk is secured to the cushion disk by means of a cellulose derivative, cement or adhesive?

Ans. Yes.

Q. 29. If the answer to Int. 28 is "Yes," when were such caps first made and sold?

Ans. June, 1934.

Q. 30. If the answer to Int. 28 is "Yes," in what quantities have such caps been sold to users thereof?

Ans. Large quantities.

Q. 31. When did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, first manufacture and sell a center spot crown with a metal foil facing disk secured to the cushion disk by means of gutta percha?

Ans. About 1917.

[fol. 1848] Q. 32. Over what period of time did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, continue to manufacture and sell such center spot crowns as are referred to in Int. 31?

Ans. From about 1917 to date.

Q. 33. Does any application for Letters Patent of the United States, other than those referred to in the patents in suit filed by the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, or by any employee of said plaintiff or said predecessor, and assigned to the plaintiff or its predecessor, refer to the use of gutta percha for securing center spots of any material, whether varnished paper or a metal foil, to the cushion disk in crown caps?

(Answer refused.)

Q. 34. Does an application by Albin H. Warth executed August 10th, 1926, and assigned to the plaintiff or to plaintiff's predecessor, Crown Cork & Seal Co. of Baltimore City, refer to the use of gutta percha for securing center spots of any material, whether paper or a metal foil, to the cushion disk in crown caps, and will plaintiff authorize the defendant to have access to said application?

Ans. Yes, and is identified as Serial No. 130,631, filed Aug. 21, 1926; Defendant may have access thereto.

Q. 35. Are any records of plaintiff's predecessor, Crown Cork & Seal Co. of Baltimore City, relating to center spot crowns, available to the plaintiff corporation, and what period of time do such records cover?

Ans. Incomplete records from 1917 to date are available.

Q. 36. For how long has Albin H. Warth been employed by the plaintiff corporation and its predecessor, Crown [fol. 1849] Cork & Seal Co. of Baltimore City, and what have been his duties?

Ans. Employed on May 17, 1916; he has been Chemical Director since that date.

Q. 37. When did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, first deliver center spot crown caps in which gutta percha was used to affix the facing disk to the cushion disk of a cap?

Ans. About 1917.

Q. 38. To whom were such crown caps delivered?

Ans. No information available.

Q. 39. Has plaintiff corporation, since August 8th, 1933, made center spot caps in the following manner:

Depositing a heat fusible cement in a metal shell.

Subjecting said shell and cement to heat.

Depositing a cushion disk within said shell upon said adhesive.

Subjecting the exposed surface of the cushion disk to heat.

Cutting a facing disk from a strip of material having heat fusible, cementitious material applied to the face thereof presented toward the cushion disk.

Applying pressure to said facing disk, said cushion disk and said shell without the presence of heat and until the adhesive has set.

Ans. No.

Q. 40. Has there been any adjudication of any one of the six patents in suit?

Ans. No.

Q. 41. If the answer to Int. 40 is "Yes," state the names of the parties and the Court in which such adjudication was held?

[fol. 1850] Q. 42. Did the plaintiff corporation or anybody for and on behalf of, or for the benefit of the plaintiff corporation, acquire any interest in the Johnson patent prior to December 20th, 1933?

Ans. Yes.

List of Licensees Referred to in Bill of Complaint and Reply and Furnished in Response to Defendant's Interrogatories 8 and 11

Name	Address	Date Agreement Signed
Ajax Bottle Cap Corporation	1226 Flushing Ave., Brooklyn, N. Y.	Dec. 17, 1934
Arco Crown Cork & Cap Co., Inc	21 Spruce St. or 120 Broadway, New York, N. Y.	Jan. 19, 1934
Armstrong Cork Company	Lancaster, Pa.	June 2, 1933
Atlas Tack Corporation	Fairhaven, Mass.	July 1, 1933
Bamberger, Kraus & Co	401 Amberson Ave., Pittsburgh, Pa.	May 19, 1933
Bond Manufacturing Corp., Inc	Wilmington, Delaware.	May 15, 1933
Carvin Bottle Cap Corp	410 Morgan Ave., Brooklyn, N. Y.	July 7, 1933
Chicago Crown Company	4615 Arthington St., Chicago, Ill.	Nov. 10, 1933
Consolidated Cork Company	49 Bogart St., Brooklyn, N. Y.	May 16, 1933
Hoosier Crown Corporation	Crawfordsville, Ind.	July 18, 1933
W. H. Hutchinson and Son, Inc	1031 N. Cicero Ave., Chicago, Ill.	May 24, 1933
Mundet Cork Corp	65 S. 11th St., Brooklyn, N. Y.	May 23, 1933
Reading Bottle Crown Co	329 Pearl St., Reading, Pa.	June 14, 1933
Universal Metal Goods Co	10300 Corliss Ave., Chicago, Ill.	July 17, 1933
Western Stopper Company, Inc	25th & Potrero Ave., San Francisco, Cal.	May 25, 1933
Truslow & Fulle, Inc	42 Wilson St., Brooklyn, New York.	Jan. 22, 1934

[fol. 1850a] Copy of Letter Modifying Agreement Forwarded to all Licensees on December 19, 1934, and Furnished in Response to Defendant's Interrogatory 10

December 19th, 1934.

GENTLEMEN:

Referring to the Crown Seal Agreement dated the — day of ——, 193-, and the Supplemental Agreement dated the 28th day of September, 1934, this is to advise that until further notice to you and beginning January 2nd, 1935, we hereby voluntarily agree to accept as complete payment for the royalties specified by Paragraph 3 of the Supplemental Agreement, a royalty at the rate of one-quarter of a cent (¼ of 1¢) per gross.

In making this offer, we specifically reserve the right to restore on ten (10) days written notice to you the existing royalty rates as specified in said Paragraph (3) or any rates not exceeding the same.

If this offer, subject to the reservation specified, is acceptable to you, will you please so indicate by your signature at the bottom of this letter and return the same to us, retaining the signed carbon copy herewith.

Yours very truly, Crown Cork & Seal Company, Inc., Licensor, by (Signed) F. E. Fusting, Vice-President.

Accepted: December —, 1934. —— ——, Licensee, by —— ——.

[fol. 1851] Copy of Supplemental Crown Seal Agreement Furnished in Response to Defendant's Interrogatory 10

Crown Seal Agreement

(Supplemental)

Supplemental Agreement

This Agreement, made at New York, New York, this — day of September, 1934, between Crown Cork & Seal Company, Inc., a New York corporation, hereinafter termed "Licensor," and —— ——, a —— corporation, hereinafter termed "Licensee"

Witnesseth: That

Whereas, the parties hereto have heretofore entered into a license agreement relating to the manufacture and sale of crown seals dated the — day of ——, 1933, and

Whereas, the parties mutually desire to modify said agreement as hereinafter provided.

Now, therefore, in consideration of the premises and of other good and valuable considerations, receipt of which [fol. 1852] is mutually acknowledged, the parties hereto agree that said agreement is from the date hereof modified as follows:

1. Paragraph 3 is amended by changing the period at the end thereof to a comma and adding the following:

"provided, Licensee desires such Letters Patent added to the Schedules A and B. And it is agreed that no additions shall be made to Schedules A and B without specific consent in writing by Licensee. Licensor shall give notice in writing to Licensee of any patents which Licensor proposes to add to Schedules A or B, and Licensee shall have thirty (30) days from the date of such notice within which to signify

whether or not it desires to have such further patents added to Schedules A or B."

2. Paragraph 4 is amended by adding thereto the following:

"Licensor agrees not to quote to the trade any amended or altered minimum prices until the expiration of fourteen (14) days following a written notice to Licensee of such amended or altered prices. And it is further agreed that when no minimum price is established by Licensor, after receipt of a request from Licensee for the establishment of such minimum prices, and Licensee shall proceed to enter into contracts for the sale of articles, the prices of which are not specified by Schedule C, then upon any subsequent [fol. 1853] fixing of minimum prices by Licensor, Licensee shall be free to fill all contracts for such articles previously entered into at the prices therein specified. If Licensor shall deliberately not establish a minimum price within one (1) year of the receipt of request from Licensee, the item shall remain unrestricted as to prices thereafter provided that, should Licensor fail to so establish a minimum price for any particular type, size, construction or embodiment of crown seals upon the request of any Licensee other than this Licensee, then this Licensee shall likewise be free to sell any such crown seals without price restriction."

3. Paragraph 7 is cancelled and the following paragraph is substituted therefor:

"Licensee agrees to pay to Licensor a royalty at the rate of three quarters of a cent (¾ of 1¢) per gross on all net sales of crown seals manufactured and shipped hereunder when the price fixed for the particular type (paper, aluminum, tin) spot crowns by Schedule 'C' under the heading 'Base Sales Prices—Two Color Composition Disc Crowns With Spots As Indicated' for shipments of 30,000 gross (car load lots) shall be twenty cents (20¢) or over, and a royalty of one-half cent (½ of 1¢) per gross on all such sales when the price fixed by Schedule "C" under the same heading for such shipments shall be under twenty cents (20¢) per gross, [fol. 1854] the royalty to be calculated on the net sales reported as provided for in Paragraph 6 and to be paid to the Licensor when rendering said reports. The price fixed by Schedule "C" for shipments of 30,000 gross lots shall deter-

mine the rate of royalty, regardless of the price to particular classes of consumers, i. e., small consumers or large (300,000 gross per year or more) consumers. Royalties shall be calculated separately on each type of spot (e. g., aluminum, paper, tin).

4. Paragraph 9 of the agreement is amended by inserting in line 12 the word "promptly" before "with."

5. Paragraph 11 is amended by cancelling in line 18 the word "mailing" and substituting "receipt."

6. Paragraph 15 (b) is amended by cancelling the last clause "whether this license thereafter continue in force or not" and substituting:

"so long as this license shall continue in force. And it is agreed that upon termination of this license, Licensee shall be in the same position, insofar, as its rights to question validity or scope of any of the patents is concerned, as though the license had never been made."

7. Substitute for Schedules "A" and "B" the following:

[fol. 1855] Schedule "A"

No. 1,899,782, Warth, February 28, 1933

Schedule "B"

No. 1,339,066, McManus, May 4, 1920;
No. 1,867,637, Warth, July 19, 1932;
No. 1,899,783, Warth, February 28, 1933;
No. 1,899,784, Warth, February 28, 1933;
No. 1,908,498, Warth, May 9, 1933;
Re. No. 19,117, Warth, March 20, 1934;
No. 1,956,481, Warth, April 24, 1934;
No. 1,967,195, Warth, July 17, 1934.

8. It is further agreed that the aforesaid agreement, dated the — day of ——, 1933, shall continue to remain in force without change, except as above specified.

Crown Cork & Seal Company, Inc., by —— ——.

Attest: —— ——, Secretary. (Seal.)

—— ——, By —— ——.

Attest: —— ——, Secretary. (Seal.)

[fol. 1856] Agreement

This Agreement, made at New York, New York, this — day of May, 1933, between Crown Cork & Seal Company, Inc., a New York corporation, hereinafter termed "Licensor" and ——— ———, a —— corporation, hereinafter termed "Licensee"

Witnesseth: That

Whereas, Licensor is engaged in the manufacture and sale of crown seals, and is the owner of certain United States Letters Patent for inventions relating to materials for facing bottle caps and method of making the same as set forth in the Schedule hereunto attached and marked Exhibit A, and is the owner of certain patents and applications for patents on closures and methods of manufacturing closures, as set forth in the schedule hereunto attached and marked Exhibit B;

Whereas, Licensee desires to acquire certain license rights under the Letters Patent in Schedules A and B; and

Whereas, Licensor desires to grant such license rights subject to certain terms and conditions as hereinafter set forth;

Now, Therefore, in consideration of the premises, of the mutual promises hereinafter set forth and of good and valuable consideration the parties hereto have agreed and do hereby agree as follows:

[fol. 1857] 1. Licensor does hereby grant to Licensee a non-exclusive right and license upon the terms and conditions hereinafter set out, in connection with use of material for the facing of crown seals, and the employment of Licensor's improved methods in the manufacture of crown seals:

(a) To manufacture (or have manufactured), for use in crown seals, but not to sell except as part of a crown seal, the materials of Patent No. 1,899,782 of Schedule A; and

(b) Under the patents and applications of Schedule B, to employ the methods thereof in the manufacture of crown seals and to manufacture and sell crown seals covered thereby.

The aforesaid license is to remain in force throughout the United States, its territories and possessions during a

period of time in which there may continue in force any Letters Patent (a) identified in said Schedules A or B; (b) issued upon the application for Letters Patent listed in Schedule B, and (c) issued upon any further or additional inventions or improvements owned by or coming into the possession of Licensor and added to said schedules as hereinafter provided, unless this license is sooner terminated, as hereinafter provided for, provided that Licensee shall at all times observe, perform and abide by the provisos, terms and conditions of this instrument and its covenants and agreements therein set forth and in the event [fol. 1858] of breach by Licensee, notice must be given Licensee by Licensor in order to effect cancellation of this agreement as hereinafter provided.

2. Licensor agrees to add to said Schedules any and all Letters Patent of the United States hereafter owned or controlled by it, or under which it may acquire the right to grant licenses without the payment by Licensor of royalty, provided such patents cover improvements (a) in materials for facing or spotting the cushion disks of crown seals or (b) in materials for adhesively uniting such facing materials to the cushion disks of crown seals or (c) in methods of uniting facing materials to the cushion disks of crown seals. In the event that Licensor acquires the right to grant licenses under patents of the aforesaid character, but must pay royalties or compensation to others for use of such patented inventions, Licensor shall include the same in schedule "C" as above set forth, provided Licensee shall pay to Licensor, in addition to the royalty herein specified, the amounts due from Licensor to others because of Licensee's use of such patented inventions. No such additional royalties shall be payable hereunder, however, if the said Letters Patent referred to in this Paragraph 2 be acquired, or the right to license under them be acquired, by Licensor from any of its officers or employees.

3. Licensor hereby agrees that when it may come to own or control or have the right to grant licenses or sub-licenses under any improvement Letters Patent as defined in Paragraph 2, it will immediately notify Licensee, and Licensee [fol. 1859] shall be immediately entitled to utilize the same upon the same terms and conditions as the Letters Patent now listed in Schedules A and B without payment of additional royalty except as provided in Paragraph 2. The

Licensor will formally include such Letters Patent in the Schedules A and B hereto attached as such license rights accrue to Licensee.

4. It is a limitation and condition of this license, however, that Licensee is licensed and authorized, under the Letters Patent for which this license is granted, to sell the crown seals manufactured hereunder (and upon which royalty is to be paid as a consideration for this license) at prices not less than the minimum prices established by Licensor by current bona fide price quotations to its trade for corresponding crown seals. Licensor shall promptly from time to time advise Licensee of the minimum prices thus established. In case no minimum prices are so established as to any particular type, size, construction or embodiment of crown seals, the Licensee shall request the establishment of a minimum price therefor and if the Licensor fails to do so within 14 days following the receipt of such request, this license shall be without price restriction as to such particular product until the establishment of a minimum price therefor. It is agreed that the present minimum prices are those set forth in Schedule C hereto attached and made part hereof. The minimum prices set forth in Schedule C may be amended or altered from time to time upon fourteen (14) days advance written notice to Licensee.

[fol. 1860] 5. Licensee agrees to keep in the United States, full, true and accurate records and books of account of crown seals manufactured and sold under this license. A duly Certified Public Accountant appointed by Licensor and at its expense, shall have access to said records and books of account at all reasonable times during business hours. If the accountant find that the Licensee's royalty payments and reports have been correct, then the accountant shall so report to Licensor but shall not disclose to Licensor or any one else any information derived from Licensee's books; but if the accountant find any discrepancy between Licensee's books and its reports or royalty payments, then the accountant shall be entitled to report to Licensor such information derived from any source as in the discretion of the accountant may be necessary to advise the Licensor of all facts pertinent to the amount and character of such discrepancies and the reason therefor, and only such information shall be disclosed.

6. Licensee agrees to make monthly reports to Licensor, not later than the 25th day of each month of each year while this license continues in force, setting forth therein the number of crown seals sold hereunder during the preceding calendar month in terms of net sales, i. e., shipped sales without deduction of cash discount but less returns and less cost of freight equalization, and less warehouse differential as set forth in Schedule C, and less defective goods allowances not exceeding one (1) per cent. of shipped sales.

7. Licensee agrees to pay to Licensor a royalty at the rate of five per cent. (5%) of all net sales of crown seals [fol. 1861] manufactured and shipped hereunder, the royalty to be calculated on the net sales reported as provided for in Paragraph 6 and to be paid to the Licensor when rendering said reports.

8. Licensor agrees that it shall be sufficient patent marking to place upon cases containing the licensed crown seals the numbers of the patents appearing in Schedules A and B, and the Licensee agrees so to do.

9. Licensor agrees that it will not grant any license to any other person, firm or corporation engaged in the manufacture and/or sale of crown seals for the manufacture and sale of crown seals under the Letters Patent at any time forming a part of Schedules A or B hereof upon terms more favorable than those herein provided, and Licensee may at its option substitute in this license and terms in any subsequent licenses under said Letters Patent which it believes to be more favorable. In order that Licensee may determine whether other licenses contain more favorable terms, Licensor covenants and agrees to furnish Licensee with a true copy of all licenses granted others for the manufacture or sale of crown seals under said Letters Patent or any of them.

10. Licensor agrees to maintain the Letters Patent under which this license is granted and to protect the same against infringement by taking effective action by suit, license or otherwise within reasonable time upon notice of such infringement.

[fol. 1862] 11. In the event Licensee breach any of the provisions of this agreement on its part to be performed,

Licensor may give notice thereof to Licensee, and in the event said breach be continued, or repeated after such notice, Licensor may cancel the agreement forthwith upon written notice. Licensee shall have the privilege of cancelling this agreement at any time after September thirty, nineteen hundred thirty-four (September 30, 1934) upon thirty (30) days written notice in advance of the date such cancellation is to take effect. Licensee shall have the right to cancel this agreement on thirty (30) days written notice to Licensor at any time prior to September thirty, nineteen hundred thirty-four (September 30, 1934) or thereafter should Licensor lower those sales prices originally established in the attached Schedule C and designated as "Base Sales Prices," provided however that should Licensee fail to give notice of cancellation within fourteen (14) days following the mailing of the notice of the lowering of such prices, the lowered prices shall be deemed to have been accepted by Licensee. Deliveries after cancellation, whether by Licensor or Licensee, on contracts made before cancellation, shall be subject to the specified royalty and shall be billed at not less than the prices of Schedules C as it existed at the date of cancellation, or at the prices of Schedule C as it existed at the date on which the contracts were written, whichever price is lower.

12. So long as this agreement be in effect, Licensee agrees not to contest the validity of any of the patents licensed [fol. 1863] hereunder nor to aid or assist others directly or indirectly in contesting their validity.

13. In the event Licensor bring suit against any third party for infringement of any of the Letters Patent herein licensed, Licensee agrees to assist Licensor by giving any evidence that Licensee may have knowledge of to be used in the prosecution of such suit to the extent to which Licensee is reasonably able, but in no event shall Licensee be required to undertake any expense in connection with such suit.

14. Licensor undertakes and agrees to save Licensee harmless and indemnify it against patent infringement by reason of Licensee's manufacture, sale or use of the articles, or Licensee's practice of the methods, covered by the Letters Patent herein licensed.

15(a) The obligation of Licensee to pay royalty as to any of the Letters Patent herein licensed shall cease and determine upon such Letters Patent being declared invalid, or so limited as not to cover Licensee's manufacture as then carried out, by the Supreme Court of the United States or a lesser court whose decision is not reversed upon appeal or review.

(b) It is agreed that if in a suit by Licensor against an alleged infringer, a court of final jurisdiction or a lower court from whose decision no appeal is taken, shall declare said Letters Patent, or any of them, invalid or limited, then said Letters Patent shall, as between Licensor and Licensee, be interpreted in accordance with the construction given to said Letters Patent in said decision, whether this license thereafter continue in force or not.

[fol. 1864] 16. This agreement and each of the terms thereof shall inure to the benefit of and be binding upon the parties hereto, their successors and subsidiaries. No right of assignment to any third party other than subsidiaries shall attach hereto on the part of either party except upon written approval by the other party.

17. Any notices provided in this agreement shall be served by either party to the other by registered mail addressed to the other party at its last known address.

18. This agreement shall at all times and places be interpreted in accordance with the laws of the State of New York.

19. The Licensor and Licensee agree that all claims or penalties for past infringements committed or alleged to have been committed by the Licensee in respect to the patents contained in Schedules A and B shall be forever waived and cancelled upon the execution of this agreement.

20. It is agreed that, as between Licensor and Licensee, Licensee may procure materials, whether patented or not, for use in crown seals covered by the Letters Patent for which this license is granted, from any sources it may desire, and no royalty other than or additional to that herein provided shall accrue to Licensor from any source of supply of Licensee by reason of such source of supply manufacturing or processing for, or supplying to, Licensee, mate-

rials for use in crown seals covered by any of the Letters Patent under which this license is granted.

[fol. 1865] 21. The Licensor and Licensee agree that as to contracts entered into before May one nineteen hundred thirty-three (May 1, 1933) shipments thereon prior to September thirty nineteen hundred thirty-three (September 30, 1933), shall not be subject to payment of any royalty or to Schedule C, but otherwise shall be subject to the terms of this agreement and shipments thereon after September thirty nineteen hundred thirty-three (September 30, 1933) shall not be subject to Schedule C, but otherwise shall be subject to the terms of this agreement, including the payment of the royalties specified.

22. Any of the rights or obligations granted or undertaken by this agreement may be delegated by Licensee to its subsidiaries owned or controlled by Licensee, but the sharing or delegation of any such right or obligation shall not relieve the sharing or delegating party from performance hereunder.

In Witness Whereof, the parties hereto have caused this agreement to be executed in duplicate for them and in their names by their respective officers thereunto duly authorized, and their corporate seals to be affixed, on the day and year first above written.

Crown Cork & Seal Company, Inc., by Charles E. McManus, Pres.

Attest: J. J. Nagle, Secy., by —— ——.

Attest: —— ——.

[fol. 1866] Schedule "A"

No. 1,899,782, Warth, February 28, 1933.

Schedule "B"

No. 1,339,066, McManus, May 4, 1920;
No. 1,788,260, Warth, January 6, 1931;
No. 1,867,637, Warth, July 19, 1932;
No. 1,899,783, Warth, February 28, 1933;
No. 1,899,784, Warth, February 28, 1933.

Application Serial No. 664,410, Warth, filed April 4, 1933, (Division of Serial No. 159,743, filed January 7, 1927).

Schedule "C"

(A) Base Sales Prices (Per Gross)

Two Color Composition Disc Crowns With Spots as Indicated

These prices apply on single shipments to one customer or plant.

	Paper Spots	Aluminum Spots	Tinfoil Spots
~~Shipments of less than 200 gross~~	~~25½~~	~~25½~~	~~28½~~
Shipments of 200 gross or over	24½	24½	27½
" " 400 " " "	24	24	27
" " 1,000 " " "	23½	23½	26½
" " 5,000 " " "	22½	22½	25½
" " 30,000 " (carload lots)	22	22	25

Prices to large consumers (300,000 gross per year or more).

L. C. L. shipments (any quantity)	22	22	25
C. L. shipments (30,000 gross or more)	21½	21½	24½

Licensor will furnish to Licensee list of customers in the large consumer class as shown by Licensor's records, and changes and additions to this list will be made from time to time, as may be indicated by the records of the Licensor, the Licensees, or both.

[fol. 1867]

(B) Sales Prices for Types of Crowns Other Than Those Specified Under Designation "Base Sales Prices."

Plain (undecorated)	deduct	2¢ per gross from Base Sales Prices
Double Lacquered	"	1½¢ " " " " " " "
One Color Decorated	"	1¢ " " " " " " "
For each color over two	add	1¢ " " to " " " "
Plain Paper backing	"	1¢ " " " " " " "
Acid-proof paper backing	"	2¢ " " " " " " "
Overall waxing	"	1¢ " " " " " " "
Natural Cork Discs (including paper backing)		
Specially selected grade	"	14¢ " " " " " " "
Standard High Grade	"	10¢ " " " " " " "
Low Grade	"	3¢ " " " " " " "
Aluminum or tinfoil spots with varnish or lacquer coating	"	1¢ " " " " " " "

Sur-charge for Private Decorated Crowns when ordered for production in quantities of:

200 to 399 gross	per decoration	add 5¢ " " " " " " "
400 " 999 "	" "	" 1¢ " " " " " " "
1,000 " 4,999 "	" "	" ½¢ " " " " " " "
5,000 gross or over	" "	no sur-charge.

Terms: 2% discount for payment within ten days—30 days net.

Carload shipments direct from factory to customers to be billed f. o. b. factory point, or with freight equalized with any of the following points: New York City; Chicago, Ill., Philadelphia, Pa., Pittsburgh, Pa., Wilmington, Del., Lancaster, Pa.; Baltimore, Md., San Francisco, Cal.

Carload freight to be allowed on carload shipments to Milwaukee, Wis.

On L. C. L. shipments from factory, branch, warehouse or distributors' points listed below the indicated differentials are to be added to "Base Sales Prices."

Los Angeles, Calif.	1½¢ per gross	Kansas City, Mo.	1¢ per gross
San Francisco, Calif.	1½¢ " "	New Orleans, La.	1¢ " "
Atlanta, Ga.	1½¢ " "	St. Louis, Mo.	½¢ " "
Boston, Mass.	½¢ " "	Cleveland, Ohio	½¢ " "
Cincinnati, Ohio	½¢ " "	Fort Worth, Texas	1½¢ " "
Dallas, Texas	1¢ " "	Memphis, Tenn.	1¢ " "
Detroit, Mich.	½¢ " "	Milwaukee, Wis.	¼¢ " "
Houston, Texas	1¢ " "	Niskayuna, N. Y.	½¢ " "
Jacksonville, Fla.	¾¢ " "	Salisbury, N. C.	1½¢ " "

Licensor will specify differentials for any additional branch or warehouse points upon request of Licensees.

[fol. 1868] DEFENDANT'S EXHIBIT PPPP

Oct. 10th, 1930.

Crown Cork & Seal Co., Baltimore, Md.

Att. Mr. N. Vinson, Vice President, & Genl. Sales Mgr.

MY DEAR MR. VINSON:

I just had confirmation through a very reliable source, of reports which have lately been brought to my attention.

It seems that your Chicago representative has recently advised the trade there that all crown manufacturers have to purchase their aluminum center crowns as well as their composition cork disc supplies from the Crown Cork & Seal Co. of Baltimore.

I believe that your firm will not permit such untruthful statements to be made in the trade, and therefore consider it my duty to bring this to your attention.

With best personal regards, I am,

Cordially yours, Ferdinand Gutmann & Co.

FG:CS.

[fol. 1869] (Letterhead of)

The Crown Cork and Seal Company

Baltimore, U. S. A.

October 13, 1930.

Mr. Ferdinand Gutmann, President, Ferdinand Gutmann & Co., Bush Terminal No. 19, Brooklyn, N. Y.

MY DEAR MR. GUTMANN:

This will acknowledge yours of the 10th and regret very much to learn of the statements attributed to our Chicago representation. In no sense will we permit remarks on the part of our men that might be derogatory to our competitors.

Please be assured that this will be carefully investigated and thanking you very much for bringing this to the writer's attention, we are with all good wishes

Yours very truly, (Signed) W. Vinson, Vice President.

V:m.

[fol. 1870] Oct. 14th, 1930.

Mr. Wm. Vinson, Crown Cork & Seal Co., Baltimore, Md.

My Dear Mr. Vinson:

I thank you cordially for your letter of the 13th.

I am very glad that you are investigating the reports which have come to me which I felt convinced were made without knowledge or consent on your, or your firm's part.

With best personal regards, I am,

Cordially yours, Ferdinand Gutmann & Co.

FG:CS.

[fol. 1871] Defendant's Exhibit RRRR

Statement of Warth, Filed Jan. 19, 1931, Approved Jan. 24, 1931

In the United States Patent Office

Interference No. 60,931

Albin H. Warth

v.

Louvern G. Lange

Preliminary Statement of Albin H. Warth

District of Columbia, ss:

Albin H. Warth, being first duly sworn, deposes and says that he is a party to the above entitled interference involving his application, Serial No. 360,895, filed May 5, 1929, and a patent to Louvern G. Lange, No. 1,779,884.

That he conceived the invention defined by the several counts on or about the first day of July, 1915.

That he first disclosed to others the said invention on or about the first day of July, 1915.

That he made first written description of the said invention on or about the first day of July, 1915.

That first drawings of the invention were made on or about the first day of August, 1926.

That the invention was reduced to practice by the manu-

[fol. 1872] facture and use of material of the character de-

fined in each count on or about the first day of June, 1915, at Baltimore, Maryland.

That the material of the character defined in each count has been made in large quantities since June 1, 1915.

Albin H. Warth.

Sworn to and subscribed before me, a Notary Public, this 16th day of Jan., 1931. Catharine S. Wilton, Notary Public, D. C. (Seal.)

DEFENDANT'S EXHIBIT SSSS

IN THE UNITED STATES PATENT OFFICE

Interference No. 60,931

LANGE

vs.

WARTH

DISTRICT OF COLUMBIA, ss:

John J. Darby, being first duly sworn, deposes and says:

That he is a member of the firm of Cushman, Bryant, Darby and Cushman, attorneys for the party Warth.

[fol. 1873] That deponent has been in immediate charge of this interference on behalf of the party Warth and attended the taking of testimony for the party Lange at the office of Messrs. Pennie, Davis, Marvin & Edmonds, in New York City on March 30th, March 31st, and April 1st, 1932.

That prior to March 30th, deponent had orally informed attorneys for Lange that deponent would stipulate the taking of the testimony stenographically instead of directly on the typewriter, provided deponent was furnished each day with a copy of the testimony; that this statement was repeated to attorneys for Lange at the beginning of the taking of testimony on March 30, 1932, whereupon counsel for Lange agreed to do so and stated that in order to do this, he would arrange to have the testimony taken by two stenographers in the employ of Messrs. Pennie, Davis, Marvin & Edmonds, under the supervision of Marie Loftus, a Notary Public who was also in the employ of Messrs. Pennie, Davis, Marvin & Edmonds.

That on both March 30th and March 31st, a copy of the testimony thus far transcribed was furnished deponent in

accordance with this agreement, and that deponent, throughout the taking of testimony, made many personal notes in the interest of the party Warth on said copy of the testimony.

That attorneys for Lange completed taking testimony about noon on April 1st, and informed deponent that no further testimony would be taken on behalf of the party Lange.

That deponent thereupon requested one of the stenographers under the supervision of the Notary, and without [fol. 1874] reference to attorneys for Lange, to add to deponent's copy of the testimony the few pages which had not been transcribed and to mail this copy, with copies of the exhibits, promptly to deponent at his offices in Washington, D. C., and that said stenographer agreed to do this.

That the statements made in deponent's affidavit filed April 5, 1932, as well as in the motion to dissolve, were based largely upon the testimony given by the party Lange, since the party Lange had furnished materials to the Crown Cork & Seal Company during the years in question and had confirmed deponent's suspicions, previously stated to attorneys for Lange, that material made by the party Lange and used for many years by the Crown Cork & Seal Company responded to the single claim in issue.

That when deponent made his affidavit filed with the motion to dissolve this interference, deponent regarded his copy of the testimony which counsel for Lange had agreed to furnish and which the stenographer had promised to forward promptly to deponent, as evidence constructively in the possession of deponent, and, therefore, constituting "proofs available" to the party Warth as set forth in deponent's affidavit.

That since the dissolution of this interference deponent has made repeated efforts to have returned in completed form his copy of the testimony bearing deponent's notes, with copies of the exhibits, but that both the Notary and attorneys for the party Lange decline to return said copy of the testimony in either complete or incomplete form.

That deponent's affidavit in support of the motion to dissolve was based largely upon the testimony, copy of which [fol. 1875] Lange's counsel agreed to furnish deponent; said affidavit was, therefore, made with the understanding by deponent that the agreement entered into would be adhered to and that the Notary or counsel for Lange would return deponent's papers and notes.

That deponent would not have permitted the testimony to be taken by Lange in stenographic form had deponent not been assured of a complete copy of the proceedings at the termination of each day; that a copy of the major portion of the testimony was delivered to deponent pursuant to this agreement, but the same is now retained by counsel for Lange notwithstanding demands made upon him and the Notary that the same be returned.

That deponent believes that the Notary has delivered deponent's copy and personal notes of the testimony to counsel for Lange, although given no authority to do so, and that counsel for Lange have definitely declined to return the same or to furnish any copy of the testimony or copies of the exhibits.

That deponent, therefore, filed the motion to dissolve and the supporting affidavit under the belief that the Lange testimony constituted part of the proofs available to Warth in connection with the question of public use, and that in view of the refusal of counsel for Lange to deliver copy of this testimony to counsel for Warth, deponent's statements in connection with the motion to dissolve were largely in error since such proofs are not, in fact, available to deponent's client because of the refusal of the Notary and attorneys for Lange to return deponent's papers and notes or to furnish a copy of said testimony as stipulated and agreed.

[fol. 1876] That deponent based his affidavit in support of the motion to dissolve largely upon the testimony and admissions by the party Lange.

That the letters attached hereto are copies of correspondence between deponent and the Notary and between deponent and attorneys for Lange.

That deponent did state to attorneys for Lange on or about March 2nd, that deponent felt the subject matter of the claim had probably been in public use, but that prior to the admissions by the party Lange in the course of his testimony, deponent did not feel that he had available any clear proof of such public use.

Further deponent sayeth not.

John J. Darby.

Subscribed and sworn to before me, a Notary Public, this 20th day of May, 1932. Theresa Buckhantz, Notary Public, D. C. (Seal.)

[fol. 1877] DEFENDANT'S EXHIBIT UUUU

License Agreement

This agreement entered into this — day of December, 1933, by and between Crown Cork & Seal Company, Inc., a corporation of New York, hereinafter termed first party and Louvern G. Lange of East Rutherford, New Jersey, hereinafter termed second party, witnesseth:

Whereas, first party is the owner of United States Letters Patent, 1,899,782, granted February 28th, 1933 and

Whereas, second party desires to acquire the right to manufacture and sell adhesive coated paper and foil under said patent, and,

Whereas, first party is willing to grant such right subject to the condition that material made under and in accordance with said patent for the center spotting of closure caps shall be sold by second party only to those licensed by first party to manufacture and sell caps.

Now Therefore, in consideration of Ten Dollars ($10.00) each to the other in hand paid, receipt of which is hereby mutually acknowledged, and in consideration of the mutual agreements herein set forth as well as other good and valuable consideration, the parties hereto agree as follows:

1. First party hereby grants to second party the right to manufacture coated paper and foil under United States Letters Patent 1,899,782, granted February 28th, 1933, provided that when such material shall be sold for the purpose [fol. 1878] of center spotting closure caps, it shall only be sold to persons duly licensed by first party to manufacture and sell caps containing material of the character covered by said patent and also licensed under first party's patents number 1,339,066, granted May 4th, 1920.—1,788,260, granted January 6th, 1932,—1,867,637, granted July 19th, 1932,—1,899,783, granted February 28th, 1933 and 1,889,784, granted February 28th, 1933.

2. Second party covenants that material made and sold under this license shall not be sold to manufacturers of crown seal and/or for center spotting of crown seals, or other center spot closure, except and unless the purchasers of such materials are duly licensed by first party under first party's Patent No. 1,899,782, granted February 28th, 1933 and under the first party's patents mentioned in paragraph numbered (1) supra.

3. First party further grants to second party a free license to manufacture and sell to anyone other than crown seal manufacturers the varnish and adhesive coated paper and foil covered by United States Letters Patent 1,899,782, dated February 28th, 1933, for other than center spotting purposes. By "center spot" as used in this agreement is meant a facing disposed substantially centrally within a cap of less diameter than the diameter of the inner surface which contacts with the top or lip of the vessel to which the cap is applied. By "center spotting" is meant the step of applying a center spot.

[fol. 1879] 4. The aforesaid license is to run for the life of the said patent 1,899,782 unless sooner terminated. The said license shall be terminable by second party upon sixty (60) days notice in writing to the first party and upon termination of the license no estoppel shall exist against second party to contest said patent in any way because of second-party's having entered into this license agreement. The license shall be terminable by first party only in the event second party shall fail to live up to the provisions of this agreement or to any of the provisions of separate agreements entered into with first party this — day of December, 1933.

5. This license is non-exclusive and is not assignable, except that second party may permit the Standard Insulation Company, a corporation of New Jersey located in East Rutherford, New Jersey to operate thereunder in second party's place and stead.

—— ——, Second Party.

Witness: —— ——.

Crown Cork & Seal Company, Inc., First Party, By —— ——.

Attest: —— ——, Secretary.

[fol. 1880] License Agreement

This agreement entered into this — day of December, 1933 by and between Crown Cork & Seal Company, Inc., a corporation of New York, hereinafter termed first party and Louvern G. Lange of East Rutherford, New Jersey, hereinafter termed second party, witnesseth:

Whereas, first party has by separate agreement granted to second party a license under United States Letters Patent No. 1,899,782, and

Whereas, the parties hereto are involved in a number of controversies which both parties desire to settle by agreement;

Now Therefore, in consideration of the aforesaid separate license agreement under said Letters Patent, and in consideration of the payment of ten dollars ($10.00) each to the other in hand paid, receipt of which is hereby mutually acknowledged and other good and valuable considerations, the parties hereto agree as follows:

1. Second party shall take no action in and shall permit to go by default judgment to first party a certain conflict proceeding now pending in the Dominion of Canada and involving first party's application for Canadian patent Serial No. 371,376, and second party's application for Canadian patent Serial No. 364,272; it is agreed that first party shall file a statement of date of invention and upon issuance of an order to second party requiring the latter to file a date of invention the latter shall fail to do so and shall [fol. 1881] permit entry of judgment by virtue of such failure in favor of first party.

2. Second party shall cause his attorneys, Pennie, Davis, Marvin & Edmonds of New York City to deliver to first party forthwith upon the signing of this agreement a complete copy of testimony taken in a certain interference proceeding involving second party's patent No. 1,779,884, including a partial copy bearing notes made by first party's attorneys, and also photostatic copies of all exhibits introduced in evidence; the latter to be prepared at first party's expense. Second party agrees that should his said attorneys decline to deliver the said papers, he will co-operate with first party to force delivery of said papers.

3. Second party agrees to sell and first party agrees to buy from second party the latter's German party No. 557,780, dated August 27, 1932, for the sum of five hundred and ninety-five ($595.00) dollars; all necessary papers for formal transfer of title of said patent to first party to be prepared at the expense of first party, and the same to be executed by second party upon tender of the payment of said sum. Second party agrees not to oppose a pending request by first party to inspect the application file of said German patent.

4. Second party shall be given by first party in the Dominion of Canada and Germany rights corresponding to the rights given second party by first party in the United States and subject to the same conditions, including restriction to sale of the material to licensees of first party [fol. 1882] or of its assigns.

Witness: —— ——. —— ——, Second Party.

Crown Cork & Seal Company, Inc., by —— ——.

Attest: —— ——, Secretary.

[fol. 1883] DEFENDANT'S EXHIBIT VVVV

At a stated term of the District Court of the United States in and for the Southern District of New York, held in the United States Court House and Post Office Building, Borough of Manhattan, City and State of New York, this 31st day of January, 1934.

Present: Honorable William Bondy, U. S. District Judge.

E. 72-52

CROWN CORK AND SEAL CO., INC., and ALBIN H. WARTH, Plaintiffs,

vs.

WILLIAM H. DAVIS, ARBA B. MARVIN, DEAN S. EDMONDS, W. Brown Morton, Merton W. Sage, Willis H. Taylor, Jr., Ernest H. Merchant, Morris D. Jackson, R. Morton Adams, Raymond F. Adams, Leslie B. Young, Marie Loftus, Defendants

Consent Order

This cause having come on to be heard at this Term of Court for the entry of this order, and all parties herein, [fol. 1884] by their respective attorneys, having consented thereto, it is, upon consideration thereof,

Ordered, Adjudged and Decreed:

1. That the sealed envelope containing the original transcript and exhibits of the party Louvern G. Lange, in the

Patent Office Interference #60,931, together with copies of the same, including that portion of a copy of the transcript of the testimony containing pencilled notes by John J. Darby, and stenographic notes of the testimony now under seal in the custody of the clerk of this Court be returned to John F. Neary (or his representative), the solicitor for the Defendants herein.

2. That in accordance with paragraph 2 of the agreement, heretofore entered into by and between Crown Cork and Seal Company, Inc., party of the first part and L. G. Lange, party of the second part, the firm of Pennie, Davis, Marvin & Edmonds, of which certain of the Defendants herein are members, shall deliver forthwith, upon the signing of said agreement, a complete copy of the testimony taken in a certain interference proceeding involving Lange patent #1,779,884, including a partial copy bearing notes made by Crown Cork and Seal Company's attorneys, and also photostatic copies of all exhibits introduced in evidence; the latter to be prepared at the expense of Crown Cork and Seal Company, Plaintiff herein.

[fol. 1885] 3. That this action be and the same is hereby dismissed with prejudice, but without damages or cost to either party.

Wm. Bondy, U. S. District Judge.

Approved as to form and consented to:
Thomas Ewing, Solicitor for Plaintiffs. John F. Neary by C. Di Martino, Solicitor for Defendants.

Envelope described above Received this 1st day February, 1934.

John F. Neary, by C. Di Martino, Solicitor for Defendants.

A True Copy: Charles Weiser, Clerk. (Seal.)

(Here follows 1 photo, side folio 1886)

BLANK

PAGE

DEFENDANT'S EXHIBIT X X X X

SPOT CROWNS



ANNOUNCEMENT

TO THE BOTTLING AND BREWING INDUSTRIES:

The conclusion of litigation involving spot crown patents (paper, tinfoil and aluminum foil) has resulted in the award to the Crown Cork & Seal Company, Inc. of the following patents:

1,899,782	granted	February 28, 1933
1,899,783	granted	February 28, 1933
1,899,784	granted	February 28, 1933
1,908,498	granted	May . . . 9, 1933

The above patents were issued after the Crown Cork & Seal Company, Inc. had established its priority of invention in an interference proceeding in the United States Patent Office.

The above patents supplement the protection granted under previously issued Crown Cork & Seal Company, Inc. spot crown patents as follows:

1,339,066	granted	May 4, 1920
1,788,260	granted	January 6, 1931
1,867,637	granted	July 19, 1932

These patents grant to Crown Cork & Seal Company, Inc., and its licensees, the exclusive right to manufacture and sell spot crowns (paper, tinfoil or aluminum foil), and the exclusive right to the methods of manufacturing "spot" materials and spot crowns, as described in these patents.

All crown manufacturers have been notified of the issuance of the patents, and they have also been advised that if they desire to manufacture aluminum foil spot, tinfoil spot and paper spot crowns, the Crown Cork & Seal Company, Inc. is prepared to issue licenses granting them the right to manufacture and sell under these patents. Many crown manufacturers have already obtained such licenses.

Spot crowns, as covered by these patents, were developed at very great expense to the Crown Cork & Seal Company, Inc. and while willing to license other crown manufacturers under these patents, it is their intention to rigidly enforce them.

Therefore, the bottling and brewing trades are advised that they should purchase spot crowns either from Crown Cork & Seal Company, Inc., or from other manufacturers licensed under its spot crown patents.



CROWN CORK & SEAL CO. Baltimore Md.



WORLD'S LARGEST MAKERS OF CLOSURES FOR GLASS CONTAINERS

BLANK

PAGE

[fol. 1887] DEFENDANT'S EXHIBIT YYYY

IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

vs.

JOHNSON

Record for Albin H. Warth

Declaration

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 66201 on or before May 15, 1933, the statement demanded by rule 110 must be sealed up and filed with the subject of invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count 1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings [fol. 1888] from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

Count 2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps, with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads; and then placing the linings in the caps under

1615

heat and pressure to effect an intimate adhesion between the linings and pads.

Count 3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between [fol. 1889] the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

The interference involves your application above identified and a patent, No. 1,852,578, granted April 5, 1932, for Method and Apparatus for Assembling Linings in Receptacle Closure Caps, Serial No. 409,793, filed November 26, 1929, by John A. Johnson, whose post office address is 84-16-86th Street, Woodhaven, N. Y., and whose attorney is John O. Seifert, 277 Broadway, New York, N. Y.

The relation of the counts of the interference to the claims of the respective parties is as follows:

Counts	Warth	Johnson
1	1	28
2	2	29
3	3	30

Counts Compared.

——— ———, Examiner, Division 14.

In the United States Patent Office

Interference No. 66,201

Warth

vs.

Johnson

The parties hereto, by counsel, stipulate as follows:

(1) That the accompanying affidavits of Frank L. Lloyd, H. Monroe Humason, and Albin H. Warth may be received

[fol. 1890] in support of the case of the party Warth, with the full force and effect of testimony regularly taken, and that said affidavits may be used by the party Warth on appeal to the Board of Appeals and/or the Court of Customs and Patent Appeals.

(2) That at final hearing the only question to be decided, is whether those portions of the Warth specification of his case in interference (Serial No. 664,410) and which also appeared in the earlier filed applications referred to in the second paragraph of the Warth specification in interference, support any or all of the claims in interference.

(3) That if the Examiner of Interferences or a higher tribunal on appeal determines that said portions of the specification do support the claims or any of them, the party Warth shall be entitled to and shall receive an award of priority as to such claims. And on the contrary, if in the event of a finding that such portions of the application do not support the claims in interference or any of them, the party Johnson shall be entitled to, and shall receive an award of priority.

John O. Seifert, Attorney for Johnson. Cushman, Darby & Cushman, Attorneys for Warth.

March 16, 1934.

[fol. 1891] IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

vs.

JOHNSON

Affidavit

STATE OF MARYLAND,
City of Baltimore, ss:

Albin H. Warth, being first duly sworn, deposes and says:

I am the Albin H. Warth who filed on January 7, 1927, an application Serial No. 159,743, entitled "Process of Pro-

ducing Closures," and whose application Serial No. 664,410, filed April 4, 1923, is involved in the above entitled interference.

For approximately seventeen (17) years I have been employed by the Crown Cork & Seal Company, Inc., and its predecessor in Baltimore, Maryland, and for the same period of time have been continuously engaged in technical work connected with the manufacture of caps of the "crown" type.

"Crown" caps may be roughly divided into two classes, namely, (1) "center spot" caps in which a small disc facing of less diameter than the cork disc or cushion is adhesively united to the cushion disc, and (2) caps in which the cushion disc is left entirely exposed.

[fol. 1892] In the manufacture of center spot caps, it has always been the practice first to manufacture what is known as an "assembled crown." That is to say, by a suitable machine the metal shell has inserted and adhesively fixed therein a cork disc or cushion which may be either natural cork or cork composition. This product has always been known in the trade as an "assembled crown."

In the manufacture of "center spot" crowns, the assembled crowns are then introduced into a machine by which the "center spot" or facing is adhesively affixed to the cushion disc of the assembled crown.

I have carefully read the following portion of the specification of my original application filed January 7, 1927, Serial No. 159,743:

> "At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.
>
> * * * * * * *
>
> It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished,

[fol. 1893] for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus."

The use of the term "assembled crown" in the clause "preheating the assembled crown" is correct. An "assembled crown" is now understood and always has been understood by me and by those familiar in the art to mean merely a metal shell of the crown type having a cushion disc deposited therein. Whenever I refer in the specification to the spotted crown, I refer to it as the "assembled *unit*." It will be noted that this expression is used throughout the specification. For example, the expression (p. 3, l. 12 et seq., "the assembled unit is then cooled and the cooling may advantageously be coupled with pressure etc.," illustrates that I clearly drew a distinction between the term "assembled crown" and the term "assembled unit."

The expression "assembled crown," as used in line 6 of the second paragraph above quoted, was used by me in the sense it is ordinarily used in the art. Ever since my association with the Crown Cork & Seal Company of Baltimore, over seventeen years ago, I, and everyone with whom I am acquainted in the crown cork industry, have used the expression "assembled crown" to refer simply to a cap consisting of a metal shell having the cork disc inserted and [fol. 1894] adhesively affixed in position. Since prior to 1919, these assembled crowns have been produced in the plant of the Crown Cork & Seal Company of Baltimore, Maryland, upon machines of the type disclosed in the patent to Goebel, No. 1,469,557, granted Oct. 2, 1923. It will be noted that the expression "assembled crown" is used repeatedly in the specification of the above noted patent in exactly the same sense it is employed by me. For example, note the following portions of the patent specification:

"In making closures of this type, according to one method, the shell, binding disk and sealing disk are assembled, the *assembled crown* is heated to soften the adhesive material, and the crown is subjected to pressure

and a cooling medium. It is to apparatus for *assembling crowns* of the type mentioned that the present invention relates." (Page 7, lines 18-26, emphasis ours.)

"Finally, the *assembled crown* is delivered to a heating and cooling wheel." (Page 1, lines 92-95, emphasis ours.)

The patented art includes numerous illustrations of the use of the expression "assembled crown" to designate exactly what I intended to designate in the above quoted portion of my specification. A few examples are the following:

Patent No. 1,402,780, McManus, Jan. 10, 1922, describes a machine for applying center spots to the cushion discs of crown caps. This patent repeatedly refers to the caps which are introduced into the machine to be spotted as "as-[fol. 1895] sembled caps." Note the following portions of the specifications: p. 2, l. 67 and p. 6, ll. 37-43. The portion of the specification last referred to reads as follows:

"In the form of the invention shown the protecting facing disk is applied after the cork or *other resilient disk has been assembled* with the metal part of the cap, and the details of the machine are so constructed as to adapt the machine to the handling of the *assembled caps.*" (Emphasis ours.)

Patent No. 1,574,913, McManus, March 2, 1926. This patent describes a machine for inserting cushion discs in crown caps. The machine is identified in the specification p. 1, l. 18 as a "cap assembling machine."

Patent No. 1,580,642, Binder, April 13, 1926. This patent describes a mechanism for assembling sealing discs with crown caps. The caps produced are described in the specification (p. 4, l. 49) as "*assembled crowns.*"

Patent No. 1,444,615, McManus, Feb. 6, 1923, describes a machine for performing the same function and the crown or cap produced thereby is identified in the specification (p. 5, l. 23) as an "assembled cap."

Patent No. 1,662,862, McManus, March 20, 1928, covers a delivery mechanism for a machine intended to assemble cushion discs with the metal shells of crown caps and the caps produced by the machine are identified as "assembled bottle caps" (specification p. 1, l. 11).

[fol. 1896] Patent No. 1,354,530, Angus, Oct. 5, 1920. The specification of this patent refers to a crown, which is fed

into a spotting machine in the manner described by me, as an "assembled crown." See p. 1, l. 18.

It has been the invariable practice in the art of manufacturing crown caps to identify machines for combing a cushion disc with a metal shell as "assembling machines" and to term the product of this machine an "assembled crown" or "assembled cap."

The quoted portion of the application was intended by me to describe a method which I fully disclosed prior to January 7, 1927, to the patent counsel who prepared the application, namely, H. M. Humason, Esq., of the firm of Philipp, Sawyer, Rice & Kennedy. Prior to January, 1927, I disclosed said process to Mr. Humason, both direct and through Mr. Frank L. Lloyd of Baltimore, Maryland, who for over seventeen (17) years has been associated with the Crown Cork & Seal Company, Inc., and its predecessor.

I refer particularly to the sentences of the specification (Serial No. 159,743 and Serial No. 664,410) which reads:

"This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol."

The above disclosure was intended by me to describe alternative methods of insuring a sticking of the adhesively coated center spot to the cushion disc as soon as the spot is [fol. 1897] deposited. In the second method, the adhesive coating on the foil strip is pre-softened by moistening slightly with a solvent so that, as soon as the punched center spot falls on the cushion disc, it tends to stick thereto. The first method described in the preceding sentence involved the preheating of the assembled crowns which are fed into the spotting mechanism so that the pre-applied heat will soften the coating on the spot as soon as the spot is deposited on the cushion disc.

The foregoing was the meaning I intended to convey by the portions of the specification quoted. In other words, when I used the term "preheating the assembled crown," I meant only one thing, namely, that the assembled crowns being fed to the spotting mechanism had heat applied thereto prior to the deposition of the spot in order to effect sticking of the spot to the cushion disc "as soon as the metal foil spot is deposited." This prevents dislodgement

or moving of the spots from their exactly centered position. An exact centering of the spot on the cushion disc is absolutely essential in order that only a very narrow marginal portion will overlie the lip of the bottle and the greater portion of the width of the bottle lip entirely around the same may uniformly contact with the cushion disc.

This procedure was fully described by me to Mr. Frank L. Lloyd, and the portions of the specification above quoted were intended to convey an understanding of such procedure.

My attention has been called to the comma which appears after the word "coating" in the above quoted portion of the specification. It is my feeling that this comma does [fol. 1898] not make the sentence misleading, but if it does make possible any interpretation other than the one I intended, as above set forth, its presence is a typographical error which I have not heretofore noted. The words "as soon as," in my judgment, clearly qualify and relate to the softening of the coating and not to the heating. They mean, as was intended by me, that the assembled crown, i. e., the metal shell and cushion disc, is preheated so that as soon as the metal foil spot is deposited, the coating will be softened.

Further deponent sayeth not.

Albin H. Warth.

Sworn and subscribed to before me, a Notary Public, this 14th day of March, 1934. Florence M. Meckrotte, Notary Public. (Seal.)

IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

vs.

JOHNSON

Affidavit

STATE OF MARYLAND,
City of Baltimore, ss:

Frank L. Lloyd, being first duly sworn, deposes and says:

I am of legal age, and for twenty (20) years have been associated with the Crown Cork & Seal Company, Inc., of

[fol. 1899] Baltimore, Maryland, and its predecessor the Crown Cork & Seal Company of Baltimore City. In January, 1927, and for sometime prior to that date, I was chief engineer of the Crown Cork & Seal Company of Baltimore City. Among my duties was the handling of patent matters, including the transmission of disclosures for patent applications to the patent attorneys for the company who were at that time Philipp, Sawyer, Rice & Kennedy of New York City. Mr. H. M. Humason of that firm personally handled practically all of the patent work for my company.

Among the disclosures which I submitted to Mr. Humason was one which afforded a basis for an application of Albin H. Warth, Serial No. 159,743, filed January 7, 1927. I discussed the said application prior to its filing with Mr. Humason, and the said Albin H. Warth also discussed the same with him. Prior to the filing of this case among the other steps described therein, Albin H. Warth fully explained to me two steps which he had developed for the purpose of insuring that the center spot applied to the cushion disc is accurately centered the instant it is deposited on the cork disc in order that in the further steps of his method, the spot would not move from its centered position. I have read the accompanying affidavit of Albin H. Warth and know that the statements contained therein are true.

I have further read that portion of the specification which reads as follows:

"It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to [fol. 1900] prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus."

I understood from the explanation of the invention given by Dr. Warth prior to the filing of the application on January 7, 1927, and now understand from the above quoted portion of the specification, that the instantaneous sticking of the spot is obtained in two ways. First, the coating on

the foil strip may be softened by a solvent, whereby when the spot is punched therefrom and deposited on the cork, it is immediately struck in its accurately centered position. Second, a preheating method is employed. It was clear that the strip itself or the spot is not preheated. The language distinctly states that the step involves "preheating the assembled crown." An "assembled crown" has always meant in the crown industry and to anyone skilled in this art, simply a metal shell of the crown type having a cushion disc therein. It is distinguishable from an assembled "unit," such as is referred to in other parts of the Warth specification from which I have quoted above. It is evident that the term "assembled unit," as used in said specification, means an assembled crown having a center spot [fol. 1901] affixed to the cushion disc thereof. To use the preheating method, instead of a solvent, to obtain sticking "as soon as the metal foil spot is deposited, it is obvious from the language of the specification, in the light of common knowledge in the art of spot crown manufacture available prior to January, 1927, that the preheating is to be effected at some point or time prior to depositing the spot on the cushion disc. Otherwise, there would be no preheating; nor would there be preheating of an "assembled crown," as this term is understood in the art and evidently used in the specification.

The only reasonable interpretation which I place upon the sentence quoted is that the assembled crown, i. e., the shell with cushion disc therein, is preheated so that the applied heat will soften the coating "as soon as the metal foil spot is deposited."

The word "preheating," as used in the specification means to me, and in my judgment would mean to anyone skilled in the crown cap art, the application of heat before the spot is applied, particularly in view of the fact that the word "preheating" is used in connection with the application of heat to an "assembled crown." Delaying the application of heat until the spot is applied would not constitute "*preheating the assembled crown*," as these words are understood in the art.

Further deponent sayeth not. Frank L. Lloyd.

Subscribed and sworn to before me, a Notary Public, this 1st day of March, 1934. W. S. Brownley, Notary Public. (Seal.)

[fol. 1902] IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

vs.

JOHNSON

Affidavit

STATE OF NEW YORK,
County of New York, ss:

H. Monroe Humason, being duly sworn, deposes and says:

I am 46 years of age and reside in New Canaan, Connecticut. Since July 1, 1927, I have been a member of the firm of Philipp, Sawyer, Rice & Kennedy, attorneys and counsellors at law, with offices at 220 Broadway, New York City and for over 11 years prior to that date I was employed by said firm as an assistant attorney. Said Philipp, Sawyer, Rice & Kennedy were for many years general patent counsel for Crown Cork & Seal Company of Baltimore City, predecessor of Crown Cork & Seal Co., Inc., and from about July, 1916, to about July, 1928, I personally prepared substantially all the patent applications of said Crown Cork & Seal Company of Baltimore City, under the general supervision of James Q. Rice, Esq., now deceased.

Among the applications so prepared by me was an application of Albin H. Warth, Serial No. 159,743, filed January 7, 1927.

[fol. 1903] About the end of 1930 prosecution of this Warth application was taken over by Cushman, Bryant & Darby (now Cushman, Darby & Cushman), since which time neither I nor my firm have had anything to do with the prosecution of said application or any divisional or related applications.

According to the Warth invention as disclosed to me, prior to the preparation of the application, Mr. Warth proposed to prevent dislodgment of the coated spot during any interval between the time the spot is assembled and the final sticking, which final sticking may be accomplished, for example, by heat and pressure. Two ways of attaining this end were proposed, one involving a preheating to soften the coating sufficiently to position the spot temporarily, the other involving moistening with a solvent to the same end.

This step of temporarily preventing dislodgment is set forth in the original application in the following paragraph:

"It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus."

[fol. 1904] I refer particularly to the following sentence from that paragraph:

"This may be accomplished, for example, by preheating the assembled crown to soften the coating, as soon as the metal foil spot is deposited."

For convenience I shall here refer to the heating for temporarily preventing dislodgment as "preventive heating" as distinguished from final heating.

It is my opinion that the above quoted sentence should not be read and cannot properly be read to mean that the coating of the spot is given its temporary softening by preventive heating when and only when the spot has been deposited. On the contrary, it is my opinion that the sentence should be read and properly must be read to mean that the preventive heating of the crown is effected before the spot is deposited. Putting it another way, the words "as soon as" relate to the softening of the coating and not to the step of heating. Or, to paraphrase the sentence, it means: "This may be accomplished, for example, by heating the assembled crown before the spot is deposited, thereby to soften the coating of the spot as soon as the spot is deposited."

The reasons for the above opinion are as follows:

1. Since the avowed object, as stated in the quoted paragraph, is to prevent dislodgment of the spot between the time of depositing the spot and the time of final sticking, the word "preheating" of the crown logically, reasonably [fol. 1905] and naturally means heating prior to the time when softening is desired, i. e., prior to the depositing of the spot. If the preventive heat is to be applied to the crown unit when and only when the spot has been deposited, it is

not a prior heating and the prefix "pre" becomes meaningless, in view of the context.

2. I am unable now to recall why I used the precise wording and terminology I did use in drafting the specification in question. But I feel sure that had I intended to limit the step of effecting preventive heating to a time when and only when the spot had been deposited, I would naturally have said that the "assembled unit is heated as soon as the spot is deposited so as to soften the coating," or words to that effect, and would not have used the word "preheating" because in view of the context, "preheating" is illogical and more or less meaningless unless the heating is prior to the depositing of the spot.

3. As is more fully set forth in an affidavit of said Warth about to be filed herewith, the term "assembled crown" in the trade means definitely a metal shell in which has been inserted and affixed a cork disc or cushion. Therefore, when the sentence in question refers to preheating the "assembled crown," it logically means heating the metal shell and assembled cork disc and not that plus something else.

4. I am informed that some question has arisen over the comma appearing after the word "coating" in the above quoted sentence. I do not now recollect why or how that comma was inserted. But in my opinion, the presence or [fol. 1906] absence of that comma is immaterial because, in view of the above remarks the sentence should be construed to mean a heating prior to depositing the spot, comma or no comma. Certainly the comma was not inserted for the purpose of defining the preventive heating as being effected when and only when the spot has been deposited, i. e., it was certainly not inserted to make the words "as soon as" relate to the heating rather than to the softening. If its presence leads to such an interpretation, then and to that extent it is a typographical error.

I have read the proposed affidavits of Albin H. Warth and Frank L. Lloyd about to be filed herewith and the same are true to the best of my knowledge and belief.

Further deponent saith not. H. Monroe Humason.

Subscribed and sworn to before me this 9th day of March, 1934. John M. Crane, Notary Public. (Seal.)

[NOTE.—The decision in this interference is marked Plaintiff's Exhibit No. 85, page 864 of this record.]

BLANK

PAGE

1628

1907

N° 16,075 A.D. 1913

Date of Application, 12th July, 1913—Accepted, 9th July, 1914

COMPLETE SPECIFICATION.

Improvements relating to Closures for Bottles, Jars and the like.

I, Ernest Frédéric Eduard Demuth, of Townmead Road, Fulham, London, in the County of Middlesex, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My invention has reference to closures or stoppers for bottles jars and like vessels of the well known "crown cork" type.

In bottle closures of this kind the metallic shell or capsule is lined with a disc of resilient material usually cork which has sometimes been faced with tinfoil and which when the closure is applied to the mouth of the vessel serves to make a more or less tight joint and prevent the contents of the bottle leaking or in the case of aerated liquids preventing escape of gas. In practice however considerable difficulty is experienced in obtaining a satisfactorily tight joint more especially in the case of bottles containing aerated liquids for the reason that the cork lining which is necessarily thin and more or less permeable allows the liquid to pass through to the back thereof and so destroy the tightness of the joint, as it is not feasible to obtain as tight a joint between the glass bottle mouth and the metallic foil as is possible where the glass is directly in contact with the cork.

Now the object I have in view is to remedy the aforementioned defects and in order that my invention may be readily understood and carried into effect I will now proceed to describe the same fully for which purpose reference is to be had to the accompanying drawings in which:—

Figure 1 represents a bottom plan view of a closure of the "crown cork" type and

Figure 2 is a section taken on line *a—a* of Figure 1.

The metallic capsule 1 is as usual provided with a disc of cork or other resilient material 2 and this latter is in accordance with my invention provided a disc 3 of metallic foil parchment or similar thin liquid resisting material of such size that it shall prevent the liquid contents of the bottle coming into contact with the disc 2 while leaving sufficient of said disc 2 exposed that the mouth of the bottle may—when the closure is in position as indicated in Figure 2—make a tight joint directly therewith. The disc 3 is secured to the cork disc 2 by cementing or in any other appropriate manner.

A closure under the present invention effectually obviates the aforesaid disadvantages and that portion of the cork disc in direct contact with the bottle mouth is free to expand under climatic conditions without prejudicially affecting the tightness of the joint.

The disc 3 may be of any desired thickness without interfering in any way with the efficiency of the device.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A closure of the crown cork type characterized by the fact that the cork or

[Price 8d.]

1629

1908

Demuth's Improvements relating to Closures for Bottles, Jars and the like.

like resilient lining is provided with a disc of metallic foil or like thin liquid resisting material in such a manner as to prevent the liquid contents of the bottle coming into contact with said cork lining while allowing the bottle mouth to abut directly against said lining substantially as described.

2. A closure of the crown cork type comprising the combination with a metallic shell or capsule a cork or like resilient lining arranged therein and a disc of protective material attached to said lining all arranged and operating as described for the purpose specified.

Dated this 11th day of July, 1913.

For E. F. E. DEMUTH.
A. E. White, A.I.Mech.E.,
Chartered Patent Agent,
Jessel Chambers, 88/90, Chancery Lane, London, W.C., and
Singer Building, New York, U.S.A.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1914.

1630

1909

A.D. 1913 JULY 12. N° 16,075.

DEMUTH'S COMPLETE SPECIFICATION. (1 SHEET.)

[This Drawing is a full-size reproduction of the Original.]

Fig. 1.

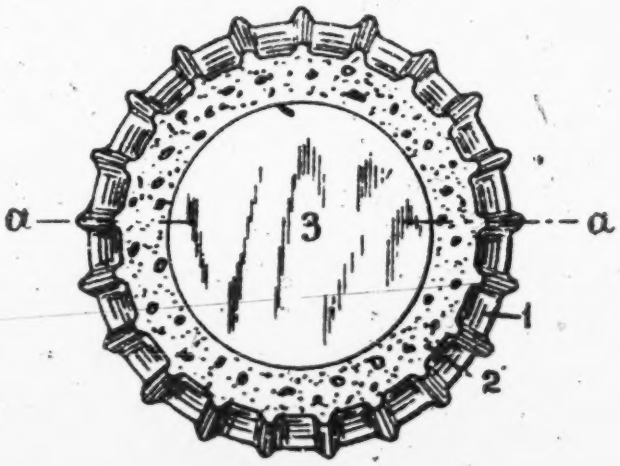


Fig. 2.



BLANK

PAGE

N° 26,297 A.D. 1909

Date of Application, 13th Nov., 1909

Complete Specification Left, 14th Jan, 1910—Accepted, 10th Nov., 1910

PROVISIONAL SPECIFICATION.

Improvements in and connected with Bottle Seals.

We, JOHN MACCORMACK, of Balcregan, Prestwick, Ayrshire, Scotland, Wire Manufacturer, and DAVID EGLIN MCPHUN, of Myrtle Cottage, Shettleston, Lanarkshire, Scotland, Secretary, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in bottle seals.

In metallic seals, as presently in use, within the cap of such seals, there is a resilient washer of soft rubber and a lining of block tin, but seals made in such manner are not satisfactory inasmuch as the rubber rings never being of an equal size a perfect seal cannot be relied upon. The object therefore of our invention is to construct a seal which will be a perfect fit as well as to reduce the cost of manufacture.

According to our invention, we use in combination with the cap of the seal a disc of wood pulp or other similar material having a covering of tin foil. In manufacture the wood pulp is coated with an adhesive substance and then the tin foil is laid on and afterwards the discs stamped out.

Dated this 11th day of November, 1909.

JOHN LIDDLE,
154, St. Vincent Street, Glasgow,
Chartered Patent Agent.

COMPLETE SPECIFICATION.

Improvements in and connected with Bottle Seals.

We, JOHN MACCORMACK, of Balcregan, Prestwick, Ayrshire, Scotland, Wire Manufacturer, and DAVID EGLIN MCPHUN, of Myrtle Cottage, Shettleston, Lanarkshire, Scotland, Secretary, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in that class of metallic bottle seals in which a disc or washer is placed within the cap of such seals, and has for its object to construct a seal which will be a perfect fit as well as reduce the cost of manufacture.

According to our invention, we use in combination with the ordinary cap of the seal a disc or washer of wood pulp, which is absorbent and expanding with moisture and with a layer of tin-foil intimately adhering to the underside of the disc or washer by an adhesive substance. In manufacture the wood pulp is coated with the adhesive substance and then the tin-foil is laid on and afterwards the discs or washers stamped out.

[Price 8d.]

1632

1911

Macnamara and McPhail's Improvements in and connected with Bottle Seals.

In order that our invention may be properly understood and readily carried into effect, we have hereunto appended one sheet of drawings, of which

Figure 1 is a section of part of the neck of a bottle sealed in combination with a disc or washer of wood pulp made in accordance with and embodying our invention.

Figure 2 is a plan of the disc or washer detached, and

Figure 3 is a side elevation of the same all hereafter more fully referred to and described.

Referring to the drawings, A is the disc or washer of wood pulp, which is coated on its under-surface with some adhesive material in order that a layer of tin-foil B, covering the under-surface shall be intimately attached thereto. In the sealing operation, the disc or washer A being composed of wood pulp which is absorbent and expanding with moisture; should any leakage take place, the moisture will act on the edge of the disc or washer and cause it to swell and so stop the leakage and thus make the seal a perfect fit.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that we are aware that it has been proposed to use in conjunction with bottle seals discs saturated in melted wax and with a loose sheet of tin-foil either above or below same and we make no specific claim for such but what we do claim is:—

In metallic bottle seals of the class in which a disc or washer is placed within the cap of such seals, forming such disc or washer of wood pulp coating same on its under side with an adhesive substance and intimately fixing thereto a layer of tin-foil all substantially as and for the purposes hereinbefore described and illustrated on the accompanying sheet of drawings.

Dated this 7th day of January, 1910.

JOHN LIDDLE,
154, St. Vincent Street, Glasgow,
Chartered Patent Agent.

Reference has been directed in pursuance of Section 7, Sub-section 4, of the Patents and Designs Act, 1907, to Specifications No. 6031 of 1887, and No. 5076 of 1905.

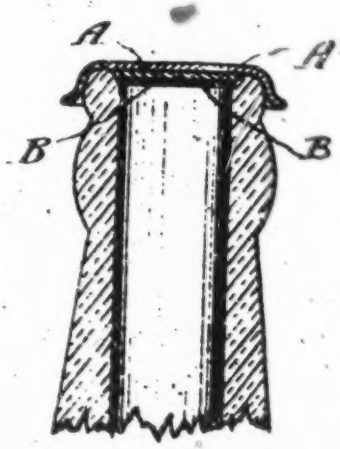
Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1910.

1633
1912

A.D. 1909. Nov. 13. N° 26,297.
MACCORMACK & another's COMPLETE SPECIFICATION.

This drawing is a full size reproduction of the original

Fig 1



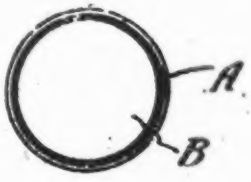


Fig 2



Fig 3

1634

J. A. JONES.

COMPOSITION CORK.

APPLICATION FILED JUNE 12, 1907.

903,865.

Patented Nov. 17, 1908.

Fig. 1

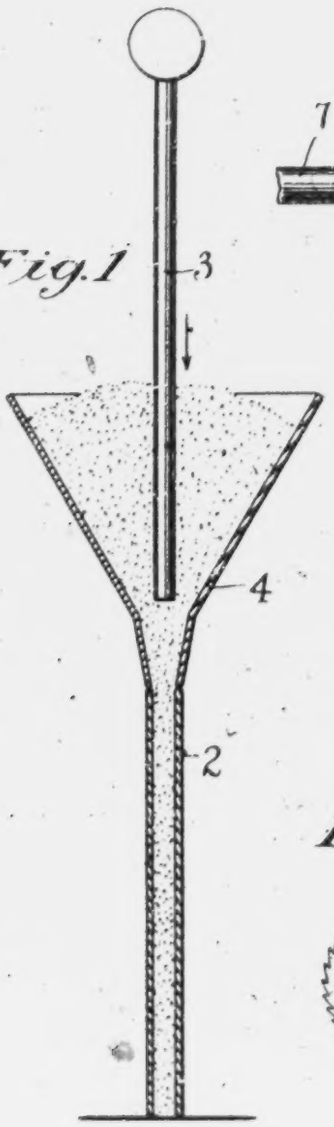


Fig. 2

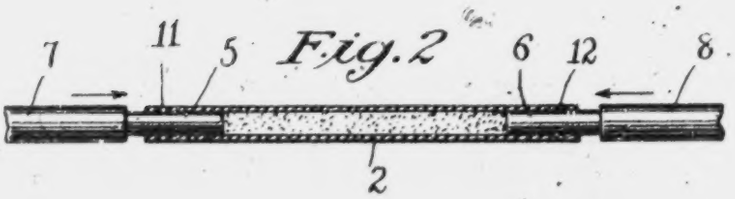


Fig. 3

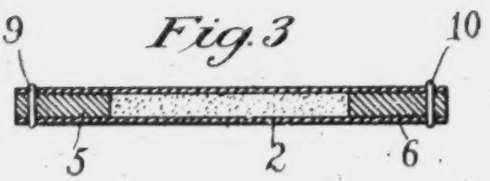


Fig. 4

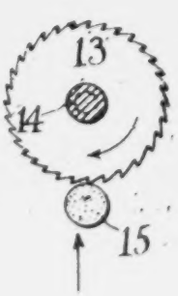
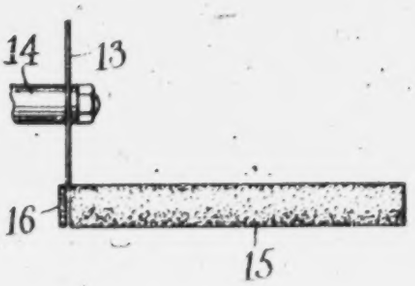


Fig. 5



Witnesses:
Chas. R. King.
E. Shankin

Inventor:
John A. Jones
by E. C. Williamson
Atty.

UNITED STATES PATENT OFFICE.

JOHN A. JONES, OF NEW YORK, N. Y.

COMPOSITION CORK.

No. 903,865. Specification of Letters Patent. Patented Nov. 17, 1908.

Application filed June 12, 1907. Serial No. 378,589.

To all whom it may concern:

Be it known that I, JOHN A. JONES, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented a certain new and useful Composition Cork of which the following is a specification.

This invention relates to composition cork.

The main object of the invention is to provide a composition cork which can be used for all purposes for which corks, whatever the form thereof, made from cork wood, may be employed.

A particular object of the invention is to provide a composition cork capable of such use which will withstand a considerable amount of heat and pressure, as for example the heat of pasteurization employed in pasteurizing beer and similar liquids, and the pressures usually found in bottles containing carbonated beverages.

The process of producing composition cork of this character comprises essentially the mixing of suitably granulated cork with a binder such as a solution of pure rubber, and afterward compressing the granulated cork and heating it to a sufficient temperature while in the compressed condition to retain it substantially in the form to which it was compressed, that is to say, the heating should be carried far enough to vulcanize the rubber employed to unite the granules of cork.

The apparatus which may be employed for producing the composition cork may be varied considerably, but simple means for performing the essential operations will be hereinafter described in detail.

In the drawings Figure 1 is a sectional elevation of devices for forming granulated cork, which has been mixed with a suitable binder, into rods of composition cork. Fig. 2 is a sectional side elevation illustrating means for compressing such a cork rod in a tube. Fig. 3 is a similar view of a tube with a cork rod held therein under compression. Figs. 4 and 5 are details illustrating in end and side elevation respectively a finished cork rod, and means for cutting the same up into cork disks.

In carrying my invention into effect I may form the composition cork into solid pieces of any desired shape and size by utilizing a suitable mold in which to form the same. In order, however, to form cork rods, and cork disks from such rods, I prefer to make use of a cylinder or tube of considerable strength, which may be filled with granulated cork which has been mixed with a binder and into which the granulated material may be forced into a compact mass. Usually this cork will be filled into such a tube or cylinder, which is here indicated by 2, by tamping it in with a plunger such as 3, the granulated cork being preferably led to the receiving end of the tube 2 by means of a hopper or funnel, such as 4, the outlet from which is substantially of the same diameter as the receiving end of the cylinder 2 and registers therewith. By means of the plunger 3 the granulated cork in the hopper or funnel 4 is forced into the cylinder 2 and tamped down by repeated blows until the cylinder is filled with cork in a state of considerable compression.

As soon as the cylinder has been filled with approximately all the granulated cork that can be forced into it by this mode of filling and compressing the granulated material, additional pressure may be brought to bear by means of a pair of plungers, such as 5 and 6, fitting the opposite ends of the cylinder 2. These two plungers may be operated by power in any suitable manner, as by the reciprocating compressors 7 and 8 which force in the plungers 5 and 6 to the positions shown in Fig. 3, in which they may be held by pins, such as 9 and 10, passing through suitable openings, such as 11 and 12, in the tube 2 and through corresponding openings in the plungers 5 and 6. These plungers 5 and 6 thus constitute plugs for closing the ends of the cylinders 2 after the cork has been fully compressed therein. It will be noticed that the cork in the cylinder in Fig. 1 is compressed to approximately one-third its original length by the plungers or plugs 5 and 6, although the compression may be carried to any desired point within limits.

The material which is placed in the hopper 4 and compressed into the cylinder 2 is chiefly granulated cork. The cork should be granulated to such an extent that the major portion thereof will go through a screen of about three-sixteenths inch mesh, but the finer particles of cork and the cork dust may all be left in the mass and utilized. After granulation there is added to the cork a binder which is preferably a solution of pure rubber containing, or to which has been added a vulcanizing medium. In this solution sulfur, and gasolene or any other suit-

able volatile solvent of rubber may be employed. The proportions in which the different ingredients may be mixed will vary according to the character of the article to be made. For cork rods such as are shown in the drawings two ounces of granulated cork by weight and approximately one and one-half ounces by measure of rubber solution may be combined and thoroughly mixed so that every particle of the cork is covered with a thin film of vulcanizable binder. In the solution so combined with the cork I obtain good results by combining approximately one ounce of rubber by weight with a pint of gasolene, benzin or naphtha or other rubber solvent by measure, this solution containing a sufficient quantity of sulfur to assure vulcanization in the granulated mass after it is properly heated.

In preparing the materials for heating, the cork and the rubber solution are first thoroughly mixed so that every particle of cork is covered with a thin film of the vulcanizable liquid. The volatile portions of the solution are driven off in any suitable way, either by permitting the material to stand and the volatile substances to escape, or by subjecting the material to a temperature of about 70° F. to volatilize the solvent quickly. It is not essential to drive off the volatile substances at this stage of the process, though it is advisable to do so.

The granulated cork, after thoroughly mixing it with the solution just described, is then packed into cylinders, such as 2, or any other form of mold, as in the manner before described, that is, by tamping or otherwise filling the granulated material into tubes or cylinders, as shown and described in connection with Fig. 1. This tamping produces a substantially even and uniform rod throughout the length thereof, and this uniformity of compression is assured by subsequently forcing in the plungers or plugs 5 and 6 from both ends of the tube, the cork rod being compressed to substantially the same extent throughout its length by these various operations and devices. After compression the molded composition cork is subjected to the action of heat for the purpose of effecting vulcanization of the relatively small quantity of rubber contained in the compressed material. The temperature employed may be that of soft vulcanization and may vary from 125° to 350° F. Usually the desired temperature is maintained for from twenty to thirty-five minutes. The heat is ordinarily applied directly to the metallic tubes 2 while the mass of compressed material is held therein under compression, as by means of the plugs 5 and 6. After the tubes so heated have been cooled the plugs may be withdrawn therefrom and the rods removed. The rods resulting from these operations are compact and close-grained with no holes in them. The cork rods so formed may be cut up into pieces of any desired lengths, this being dependent upon the use to which such cut pieces are to be put. In Figs. 4 and 5 I have illustrated at 13 and 14 a cutter and its shaft for severing the cork rod into sections. Here this cork rod, which is designated by 15, is cut into short lengths to form cork disks, such as 16, each of these disks being only one-eighth inch or less in thickness, firm and close-grained, with no holes of any kind in them and having the particles of cork so intimately united that they will withstand all temperatures employed in pasteurizing beer, etc., and all pressures to which bottles containing carbonated liquids are subjected.

An important advantage resulting from the use of corks or cork disks made in the manner herein described is that they have great elasticity in the direction of the line of compression, that is to say, in the direction of the thickness of the cork disks, and this is a very important factor in sealing disks to be used in beer bottles and for analogous purposes.

What I claim is:

1. Composition cork, constituting a substantially homogeneous body of solid cork consisting of granules of pure cork covered with thin coatings of a binder which unites all the granules and is insoluble by, and substantially neutral in the presence of, water, beer, and similar beverages both at normal and at high temperatures and pressures.

2. Composition cork, constituting a substantially homogeneous body of solid cork consisting of granules of pure cork covered with thin coatings of rubber which is permanently united with all the granules by soft vulcanization and is insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

3. A solid homogeneous elastic composition cork disk, consisting of granules of cork covered with thin coatings of rubber which is permanently united with all the granules by soft vulcanization and is insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

4. A solid homogeneous elastic composition cork disk, consisting of granules of cork covered with thin coatings of rubber which is permanently united with all the granules by soft vulcanization while the cork and the rubber are in a compressed state, said rubber and the disk being insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

5. Composition cork, constituting a sub-

stantially homogeneous body of solid cork having its air cells substantially unclogged and of substantially the same resiliency as natural cork wood and consisting of granules of pure cork covered with thin coatings of a binder which unites all the granules but does not impregnate them and which is insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

6. Composition cork embodying a substantially homogeneous body of solid cork incapable of shrinkage under any ordinary conditions of atmosphere or use as a sealing medium and consisting of granules of pure cork covered with thin coatings of a binder which unites all the granules and is insoluble by water, beer and similar beverages both at normal and at high temperatures and pressures.

7. Composition cork constituting a substantially homogeneous body of solid cork normally expansible and incapable of shrinkmosphere or use as a sealing medium and age under any ordinary conditions of atmosphere or use as a sealing medium and consisting of granules of cork covered with thin coatings of a binder which unites all the granules and is insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

Signed at New York, in the county of New York, and State of New York, this 11th day of June, A. D. 1907.

JOHN A. JONES.

Witnesses:
EDGAR A. FELLOWS,
ROBERT CHAMPION.

Correction in Letters Patent No. 903,865.

It is hereby certified that in Letters Patent No. 903,865, granted November 17, 1908, upon the application of John A. Jones, of New York, N. Y., for an improvement in "Composition Cork," an error appears in the printed specification requiring correction, as follows: Page 3, line 25, consisting of the words "mosphere or use as a sealing medium and" should be stricken out; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22d day of December, A. D., 1908.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.

1638

J. A. JONES.

VESSEL SEAL.

APPLICATION FILED OCT. 16, 1909.

1,110,138.

Patented Sept. 8, 1914

Fig. 2

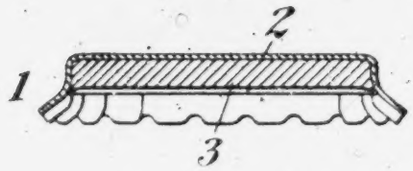
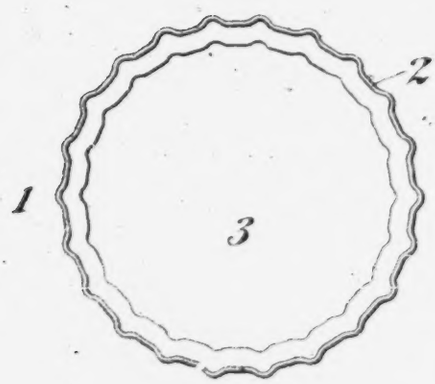


Fig. 1



Witnesses.
Chas. L. King.
R. Champion

Inventor:
John A. Jones
by Thos. Crampton
Attorney.

BLANK

PAGE

BLANK

PAGE

UNITED STATES PATENT OFFICE.

JOHN A. JONES, OF NEW YORK, N. Y.

VESSEL-SEAL.

1,110,138. Specification of Letters Patent. Patented Sept. 8, 1914.

Application filed October 16, 1909. Serial No. 522,941.

To all whom it may concern:

Be it known that I, JOHN A. JONES, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Vessel-Seals, of which the following is a specification.

This invention relates to vessel seals, and particularly to a vessel seal formed as a unitary article, which invention is disclosed in Letters Patent of Mexico, dated October 27th, 1908 and numbered 8,516; France, #395,950, dated November 4th, 1908; Spain, #44,304, dated January 16th, 1909; and Belgium, #211,762, dated November 6th, 1908.

The main object of the invention is to provide a device of this description having a metal or equivalent stiff cap adapted to engage the neck of a bottle or similar article and a sealing layer formed therein. This sealing layer may be of any material suitable for the purpose, either a single substance or a combination of two or more substances, and said substance or combination should be sufficiently plastic to permit its being formed or molded within said cap. When the sealing layer is composed of small particles of material united by a binder, as will usually be the case, the composition will be fed into the caps, formed or molded therein, subjected to pressure, and the binder set while the composition is under compression. Said composition is generally made up of particles of granules of cork coated with a binder. This composition is fed into metal shells, held under compression to form a sealing layer or disk, and the binder then set, in which case the sealing layer formed in said cap is a substantially homogeneous but soft, elastic and readily compressible body of solid gas-tight cork made up of granules permanently united by thin coatings of a binder that is substantially neutral in the presence of water, beer and similar beverages under all ordinary conditions of bottling, pasteurization and use, and capable of withstanding the temperature of pasteurization without being dissolved, disintegrated or distorted thereby, and substantially incapable of shrinkage under any ordinary conditions of temperature or use.

Bottle seals of the crown type as previously made have consisted of a metal cap adapted to engage a bottle neck and a sealing disk of cork wood inserted therein and insecurely held by friction or an adhesive. Cork disks, however, even of the best quality, are more or less porous, causing leakage of gas when used on bottles containing beer or aerated liquids. The porous nature of cork disks also necessitates the use of a layer of waxed paper or similar material between the cap and the cork to prevent corrosion of the metal. Such seals are also unduly expensive, it being necessary to use the best grades of cork wood to insure good results. Moreover, many operators, both hand and machine, have been necessary in cutting and sorting these disks, treating them to increase their pliability, cutting paper fillers therefor, and assembling these various independent parts in the metal shell, the result being an expensive closure. To increase the effectiveness of vessel seals and at the same time decrease the cost of production thereof, applicant has produced an article having a non-porous sealing layer formed or molded directly in the metal cap and preferably adhering thereto. This sealing layer may be of any material capable of sealing a bottle mouth, a preferred type being that in which granules of cork are united by a binder, said sealing layer being in such case non-porous, elastic, and capable of withstanding a considerable amount of heat and pressure, such as the heat of pasteurization and the pressure usually found in bottles containing carbonated beverages, and the binder being insoluble by and substantially neutral in the presence of water, beer or similar beverages.

In the drawings Figure 1 is an underside view of a vessel seal embodying my invention, and Fig. 2 is a section of the same.

In the drawings I have shown a unitary vessel seal, designated generally by 1, said seal consisting of an outer shell or cap 2 of any suitable form, and usually of metal, adapted to engage the neck of a bottle, and a molded or formed sealing layer 3 therein of any material suitable for sealing the mouth of a bottle or similar vessel. Good results have been obtained by the use for this purpose of a composition of granulated cork and a binder, and said binder may be any suitable for the purpose. The ingredients of this composition may be combined in varying proportions and under different

conditions to produce a sealing layer of sufficient elasticity to insure an effective closure for such vessel mouth. When the sealing layer is a composition of an adhesive nature, as will usually be the case, it is particularly favorable to the formation of a unitary seal, said composition being formed or molded directly in the cap and adhering thereto without the interposition of any additional member such as the paper necessary with porous cork disks.

A unitary seal as herein described possesses many advantages over the ordinary closure or any seal having the cap and the sealing layer made as separate articles requiring assembling. It is more effective, owing to the non-porous character of the formed sealing layer, and also because of the certainty that said sealing layer will be positively held in the cap, which is not the case with the loose or slightly cemented-in cork disk. The cost of production is also much less than in the case of articles heretofore used, as the sealing layer is ordinarily made of materials that are easily obtained and cheap, this being especially the case when granulated cork is employed. The binder, of which a very small amount is ordinarily employed, is also inexpensive. Another great saving arises out of the reduction of the number of operations necessary to produce the finished product.

No one has made, so far as I am aware, a complete vessel seal, consisting of a metal cap and a layer of sealing material—preferably composition cork such, for example, as described herein—formed in such cap; nor has any one made such a vessel seal with a sealing layer, whether of this or some other material, permanently united with the metal cap so that the seal, considered as a whole, is a unit and not a mere assemblage of independent elements; and these are important features of my invention.

A vessel seal such as herein described may be used for all purposes for which seals of large or small diameter have heretofore been employed, and on bottles containing beer, aerated liquids and other beverages, as well as on vessels containing liquids or commodities not containing gas pressure.

In forming my unitary seal, any metal or other stiff cap may be used that is adapted to engage a bottle neck. Within this cap is placed a portion of material capable of forming a seal for the mouth of a bottle and preferably adapted to adhere to the cap. Said sealing material is then formed in said cap as desired and subjected to further treatment, if necessary, to cause it to retain the desired form. When this sealing material is a composition of granulated cork and a binder of rubber the rubber is subjected to soft vulcanization while the sealing layer is held under compression. These operations may be carried out in the manner described in Patent #903,865, granted to me November 17th, 1908.

What I claim is:

1. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid sealing material formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

2. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid composition sealing material formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

3. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid composition cork formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

4. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a layer of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but soft elastic and readily compressible body of solid gas-tight cork made up of granules permanently united with one another and with the metal cap by thin coatings of a binder, said body being also substantially incapable of being dissolved, disintegrated or distorted by pasteurization.

5. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a layer of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but soft elastic and readily compressible body of solid gas-tight cork made up of granules permanently united with one another and with the metal cap by thin coatings of a binder, said body being also substantially incapable of being dissolved, disintegrated or distorted by pasteurization and substantially incapable of shrinkage when in use.

6. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a disk of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but

t elast' and readily compressible body solid gas-tight cork made up of granules rmanently united by means of soft vulnization by thin coatings of a rubber nder, said disk being also substantially inpable of being dissolved, disintegrated or torted by pasteurization and being subntially incapable of shrinkage when in use.

Signed at New York, in the county of New York, and State of New York, this 14th day of October, A. D. 1909.

JOHN A. JONES.

Witnesses:
C. S. CHAMPION,
R. CHAMPION

1642

C. M. C. NIELSEN.

MACHINE FOR MAKING BOTTLE CAPS.

APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 1.

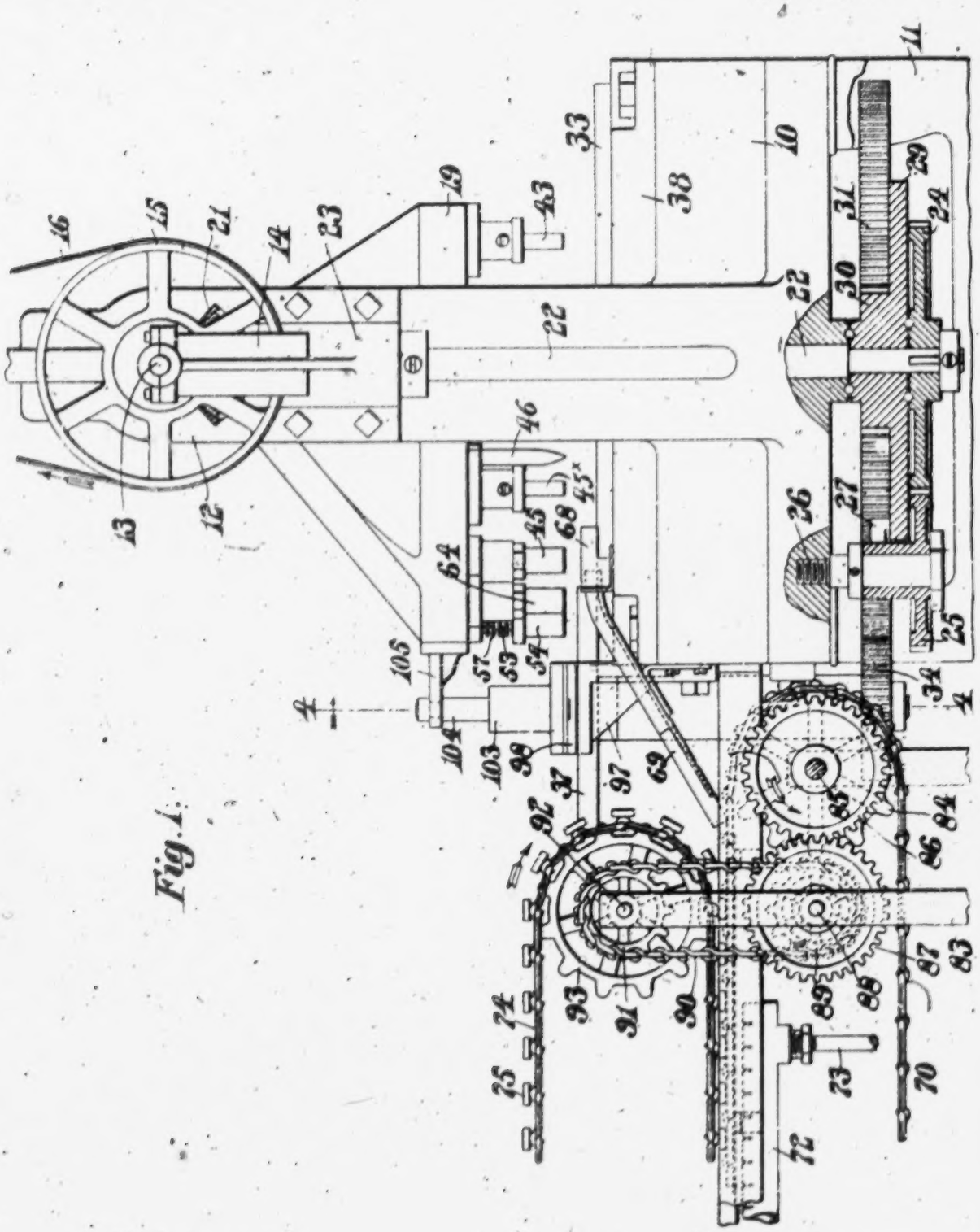


Fig. 1.

Witnesses:

Nathan C. Lombard

Inventor:

George M. C. Nielsen,

by Walter E. Lombard

Atty.

BLANK

PAGE

1643

G. M. C. NIELSEN.

MACHINE FOR MAKING BOTTLE CAPS.

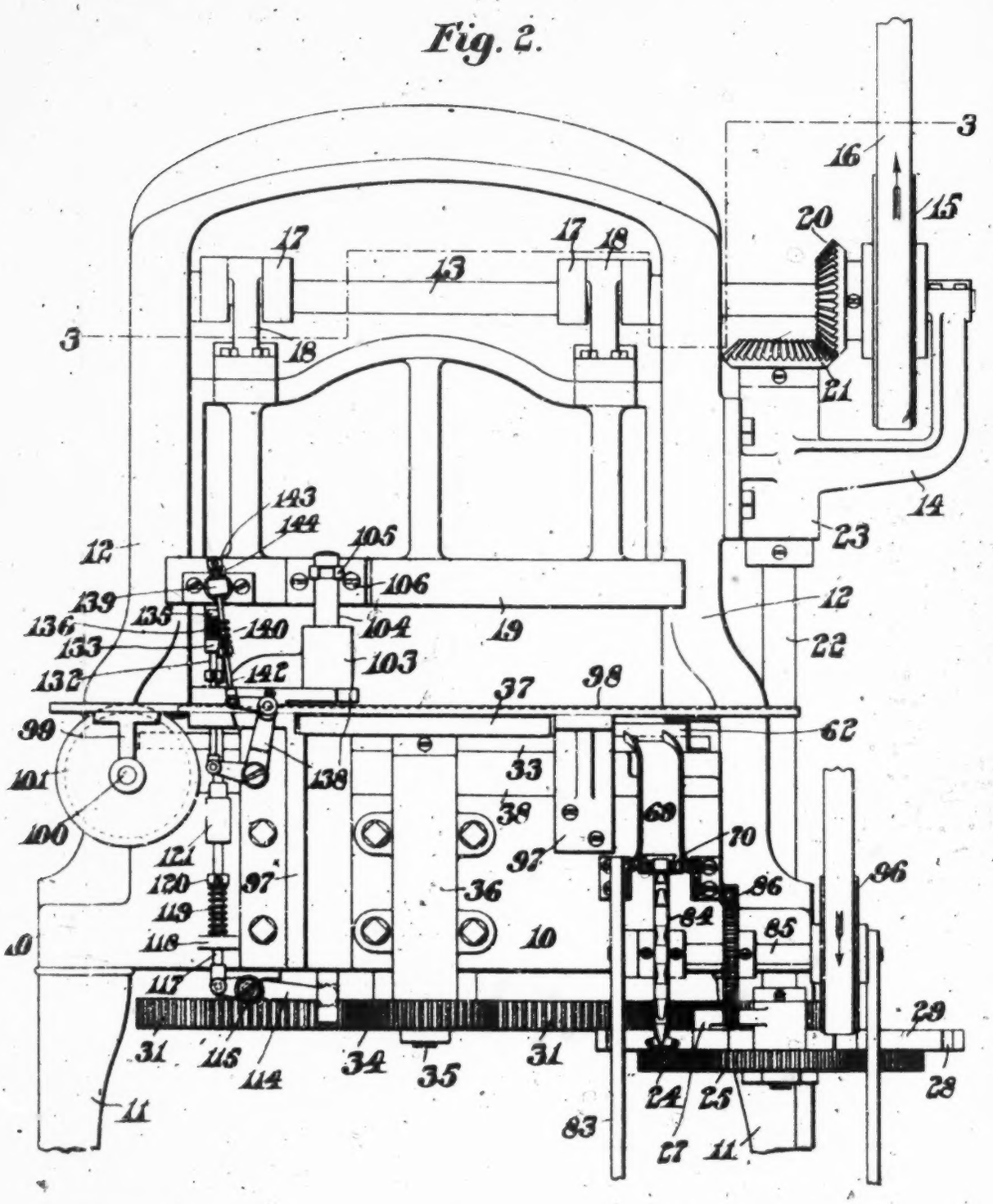
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

Howard Hanscom

Nathan C. Lombard

Inventor:

George M. C. Nielsen,

by Watts & Lombard,

Atty.

BLANK

PAGE

1644

G. M. C. NIELSEN.

MACHINE FOR MAKING BOTTLE CAPS.

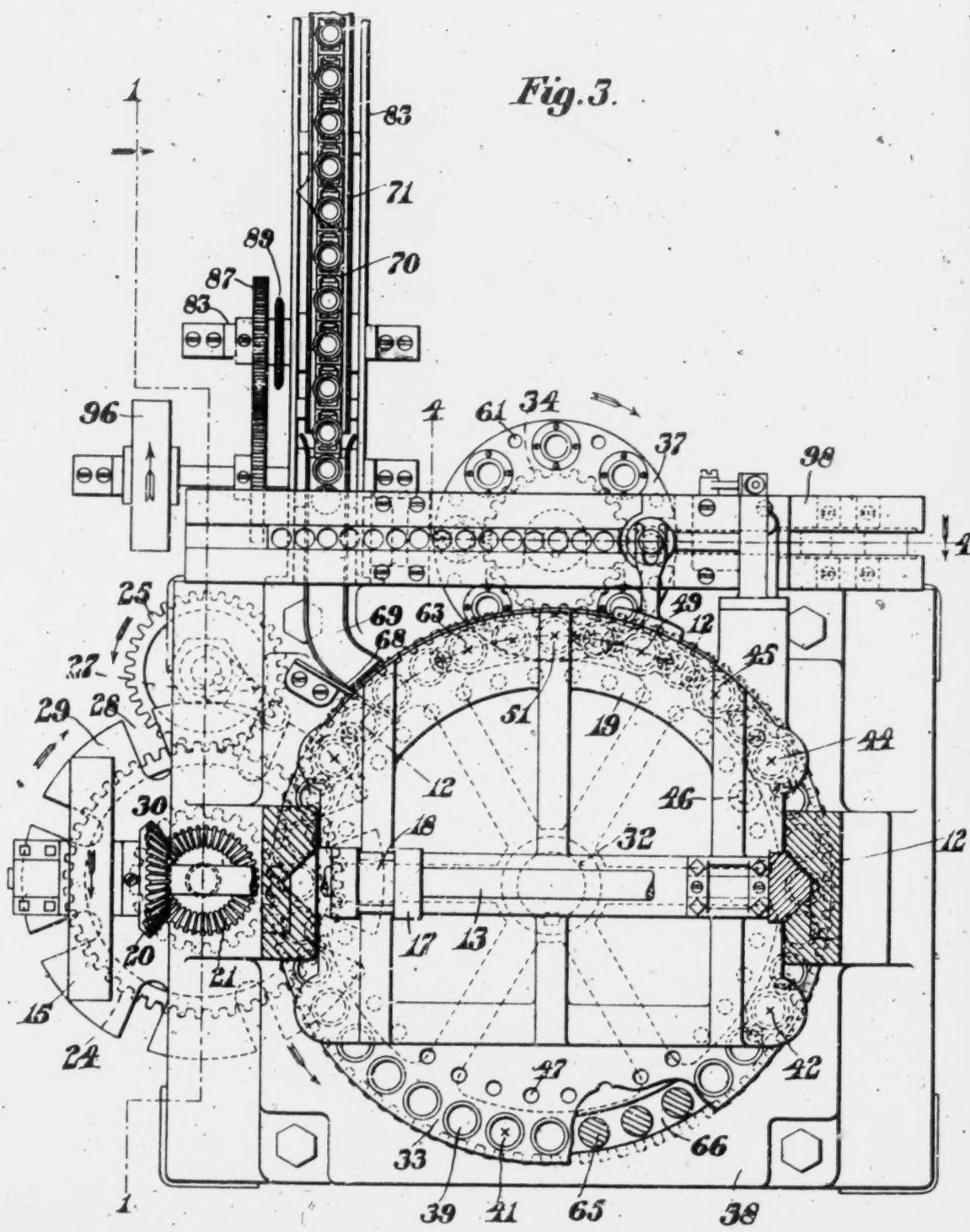
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 3.

Fig. 3.



Witnesses:

Howard Hanscom

Nathan C. Lombard

Inventor:

George M. C. Nielsen,

by Watter & Lombard,

Atty.

BLANK

PAGE

1645

G. M. C. NIELSEN.

MACHINE FOR MAKING BOTTLE CAPS.

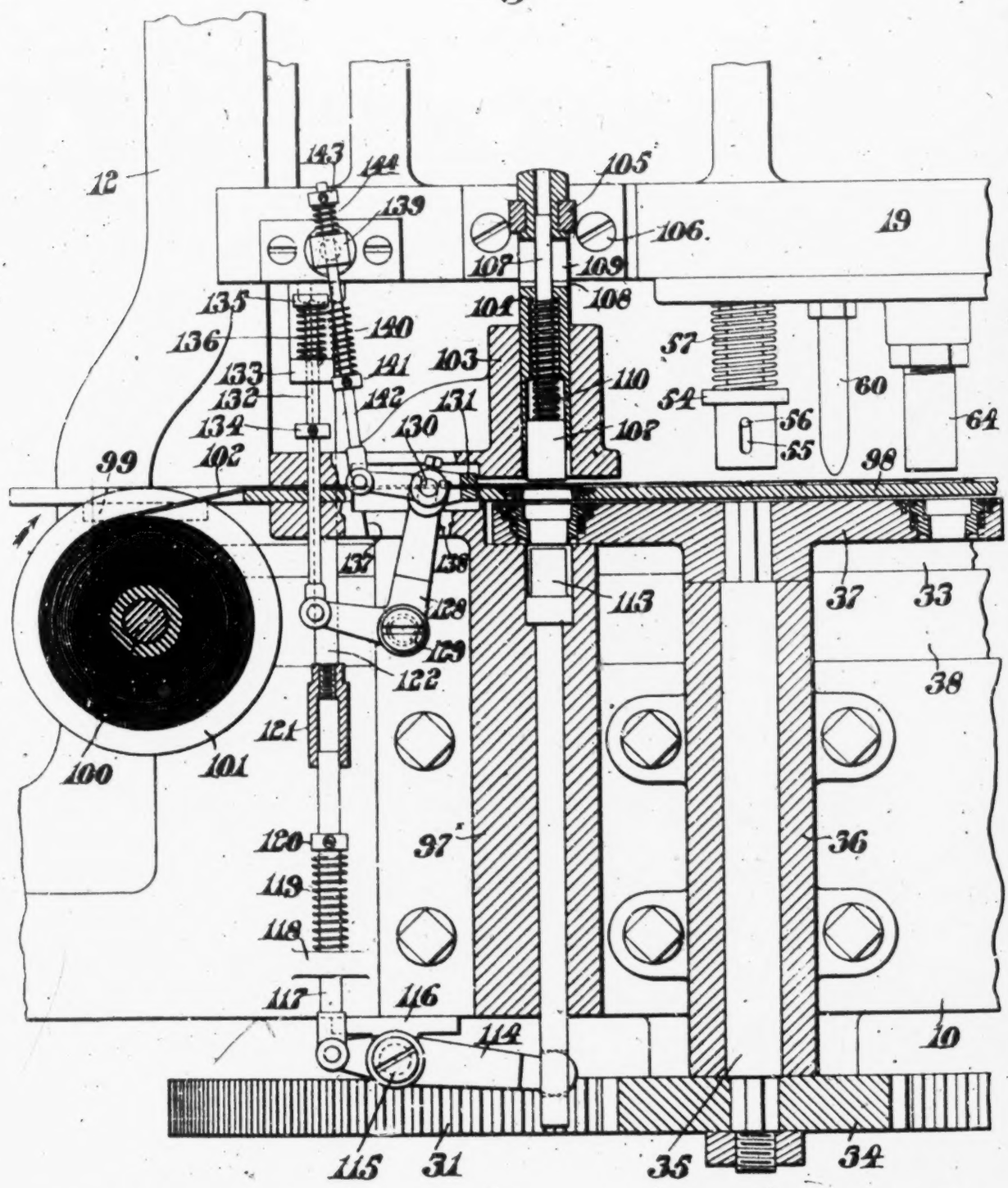
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 4.

Fig. 4.



Witnesses:

Howard Hancock

Nathan C. Lombard

Inventor:
George M. C. Nielsen,
by Watts & Lombard,
Atty.

BLANK

PAGE

.1646

G. M. C. NIELSEN.

MACHINE FOR MAKING BOTTLE CAPS.

APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 5

Fig. 7.

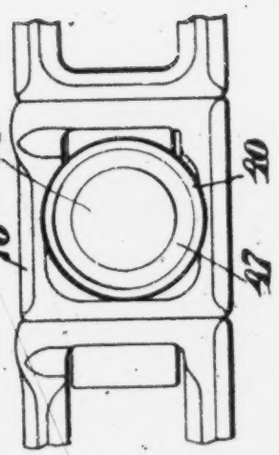


Fig. 5.

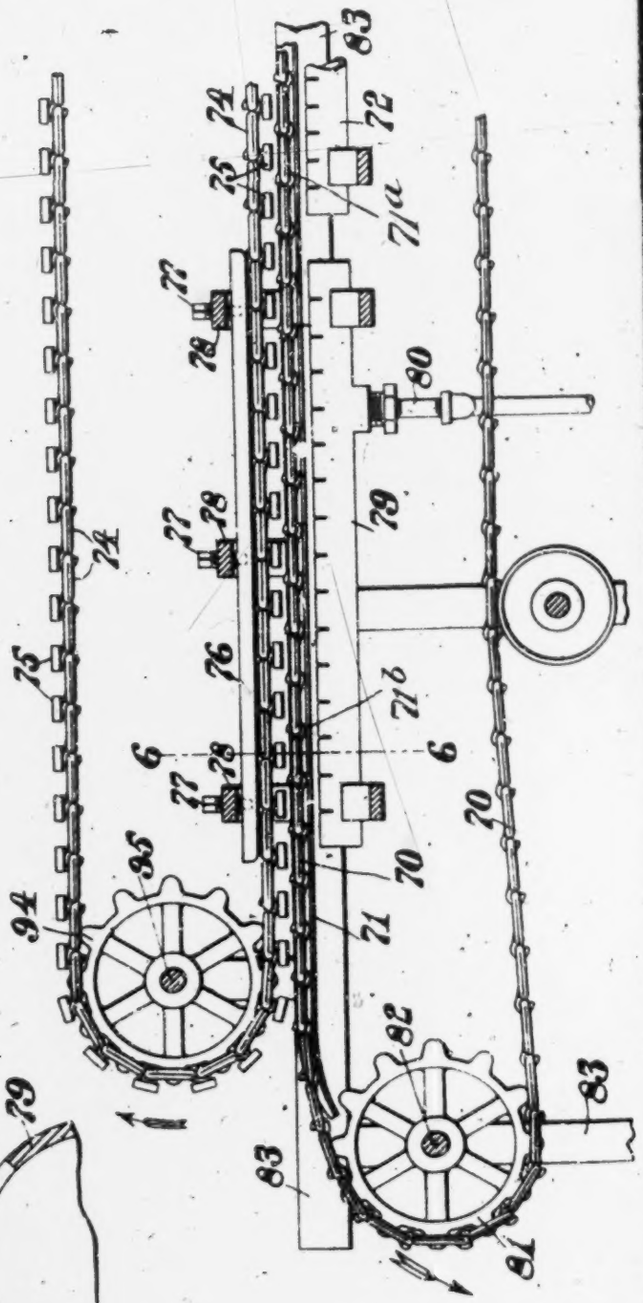
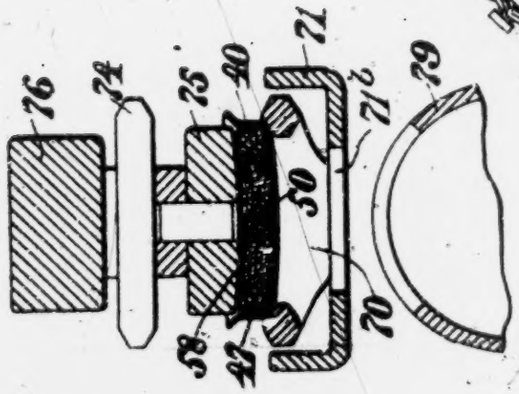


Fig. 6.



Witnesses:

Howard Hanecom

Nathan C. Lombard

Inventor:

George M. C. Nielsen,

by Watter & Lombard

Atty.

BLANK

PAGE

1647

G. M. C. NIELSEN.

MACHINE FOR MAKING BOTTLE CAPS.

APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 6.

Fig. 11.

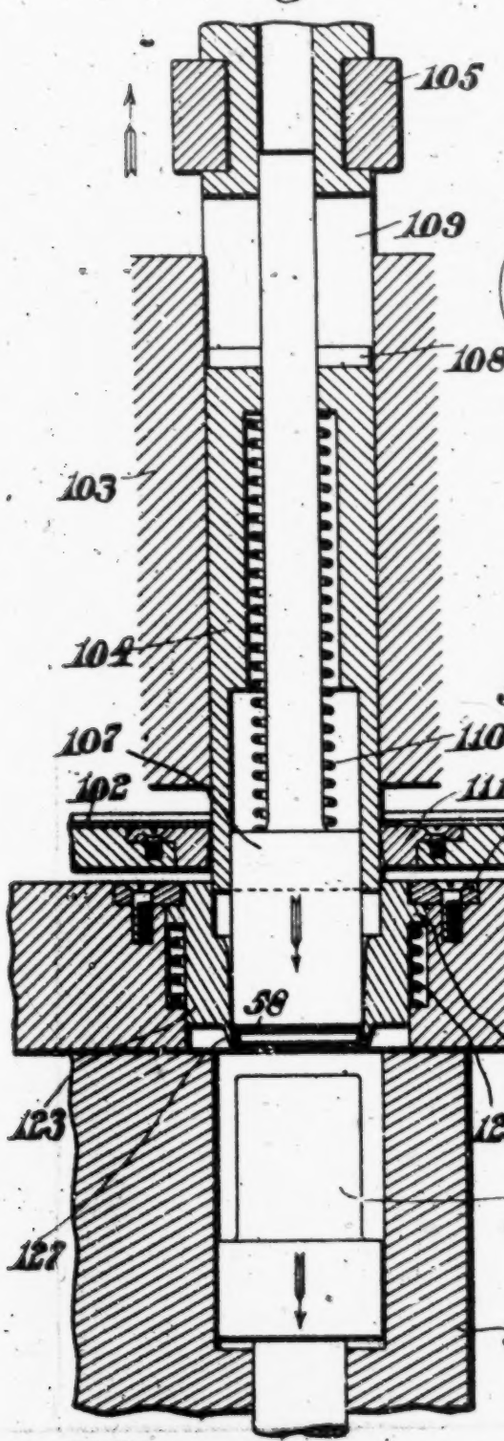


Fig. 9.

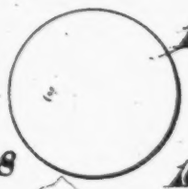
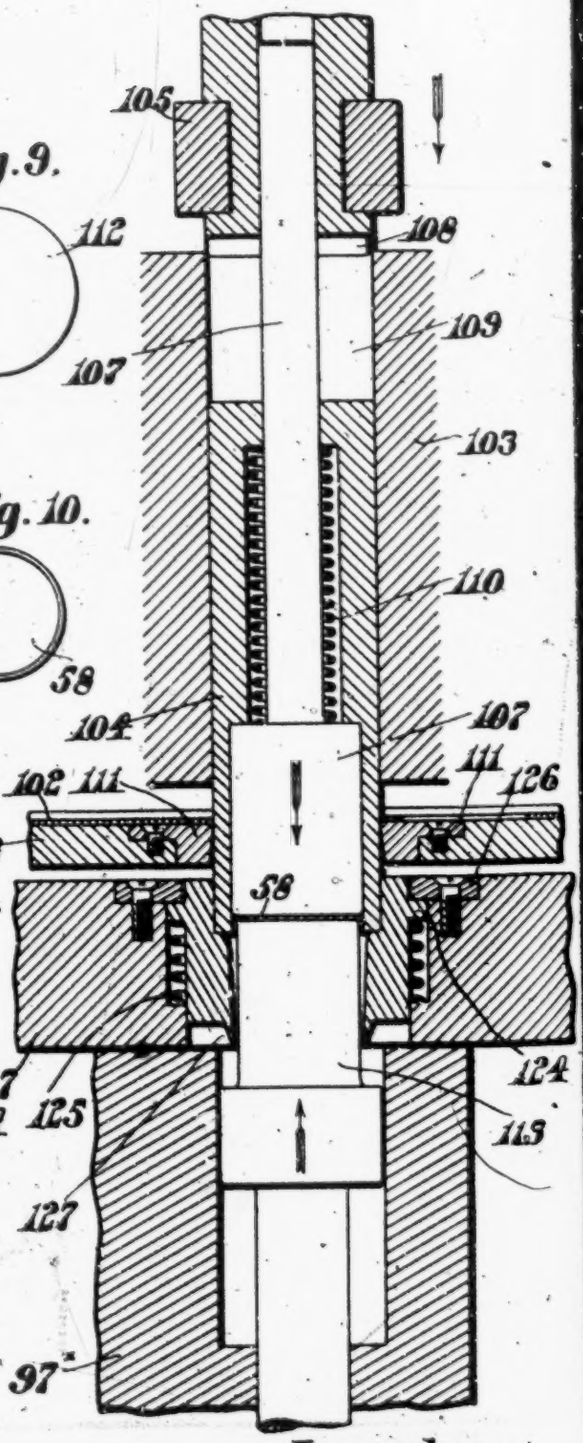


Fig. 10.



Fig. 8.



Witnesses:

Nathan C. Lombard

Howard Hanecom

Inventor:

George M. C. Nielsen,

by Watts & Lombard,

Atty.

BLANK

PAGE

1648

G. M. C. NIELSEN.

MACHINE FOR MAKING BOTTLE CAPS.

APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 7.

Fig. 12.

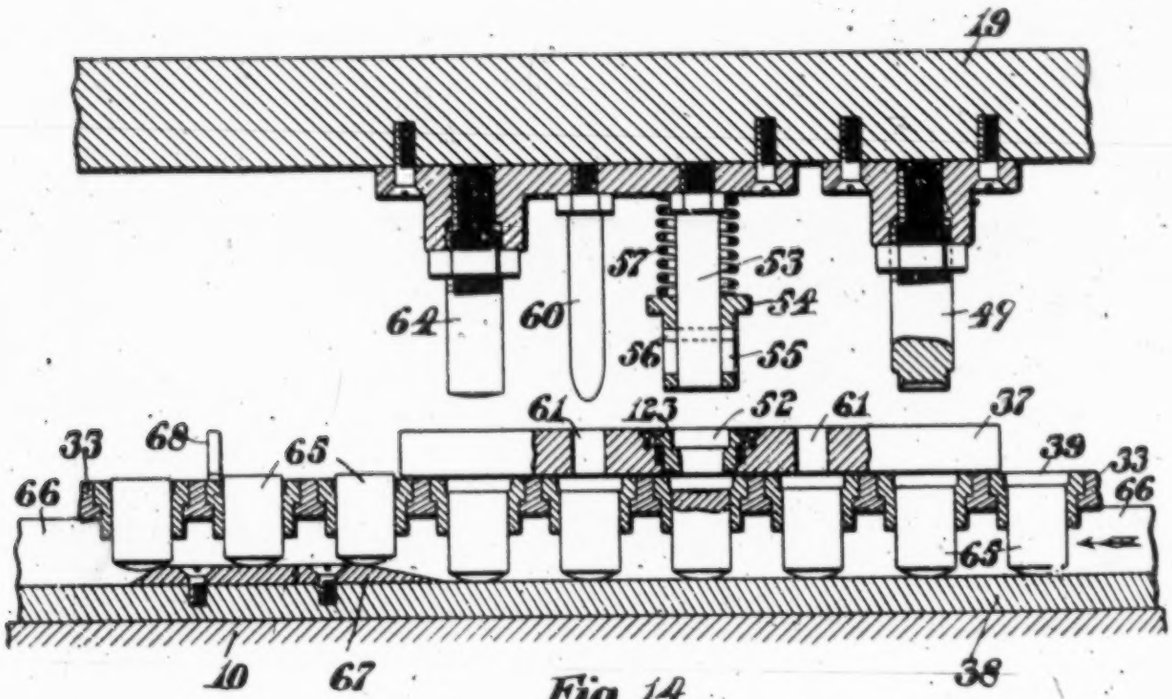


Fig. 14.

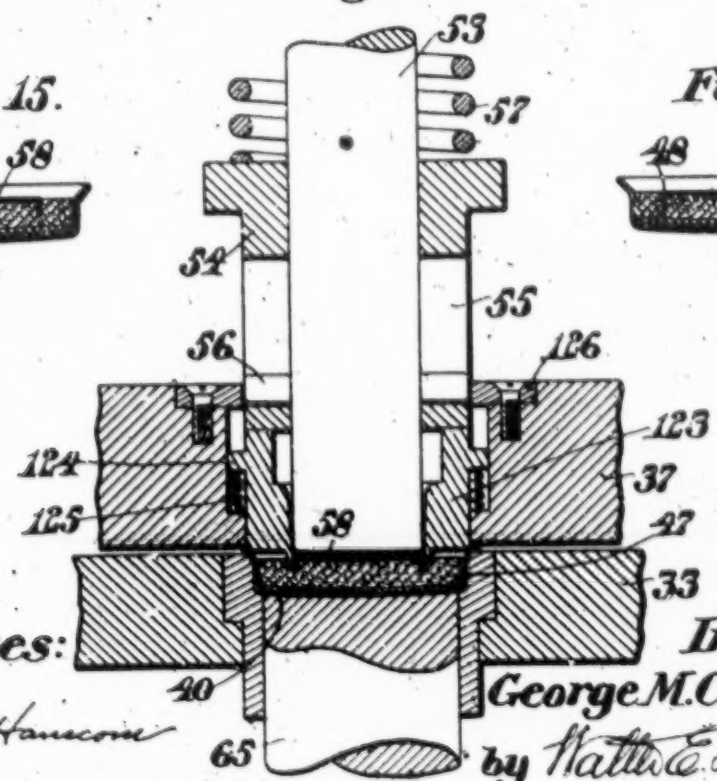


Fig. 15.

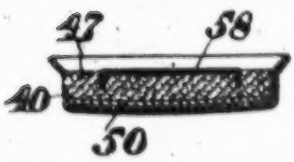
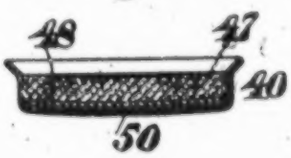


Fig. 13.



Witnesses:

Howard Hanscom

Nathan E. Lombard

Inventor:

George M. C. Nielsen,

by Wattles & Lombard

Atty.

UNITED STATES PATENT OFFICE.

GEORGE M. C. NIELSEN, OF MILLIS, MASSACHUSETTS, ASSIGNOR TO UNITED CORK & SEAL CO., OF MILLIS, MASSACHUSETTS, A CORPORATION OF MAINE.

MACHINE FOR MAKING BOTTLE-CAPS.

1,195,392. Specification of Letters Patent. Patented Aug. 22, 1916.

Application filed April 28, 1909. Serial No. 493,051.

To all whom it may concern:

Be it known that I, GEORGE M. C. NIELSEN, a citizen of the United States of America, and a resident of Millis, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Making Bottle-Caps, of which the following is a specification.

This invention relates to an apparatus for manufacturing bottle caps and particularly to that class of caps which are provided with a lining of cork secured to the inner side of the cap by means of an adhesive.

It has for its object the provision of means for assembling the various parts of the cap and when thus assembled, subjecting them to heat to cause the adhesive to adhere to the cork and the cap between which it is interposed and then subjecting the cap to pressure for a limited length of time and subjecting the cap to the action of a cold air blast while under pressure.

Another object of the invention is to provide a means for protecting the inner face of the cork lining from the action of the contents with which the bottles on which the caps are used are filled.

The invention consists in certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings: Figure 1 is a side elevation of one end of a machine embodying the features of this invention, portions thereof being cut in section on line 1—1 on Fig. 3. Fig. 2 is a rear elevation of the same. Fig. 3 is a horizontal section of the same, the cutting plane being on line 3—3 on Fig. 2. Fig. 4 is an enlarged vertical section of the devices for stamping out the protecting plates, the cutting plane being on line 4—4 on Figs. 1 and 3. Fig. 5 is a vertical section of the end of the machine opposite to that shown in Fig. 1. Fig. 6 is an enlarged transverse section of a portion of the same, the cutting plane being on line 6—6 on Fig. 5. Fig. 7 is a plan of a portion of the chain conveyer, showing a completed cap supported thereon. Fig. 8 is an enlarged vertical section showing the cutting dies for cutting out the cork protecting plates from strips of facing material. Fig. 9 is a plan of a blank cut from the sheet of facing material by the cutting die. Fig. 10 is an inverted plan of the protecting plate after an annular flange has been formed thereon. Fig. 11 is a vertical section similar to Fig. 8 showing the positions of the various parts assumed after the annular flange has been formed upon the protector plate. Fig. 12 is a sectional elevation, the cutting plane being on line 12—12 on Fig. 3 and showing the various devices for cutting the annular groove in the cork lining to the cap, placing the flanged protector plate thereon, and forcing the flange thereof into said annular groove. Fig. 13 is a section of a cap after the annular groove has been cut into the cork lining in which condition it is positioned beneath the plunger, adapted to force the protecting plate therein. Fig. 14 is an enlarged section showing the operation of the device for forcing the protecting plate into the annular groove in the cork lining, and Fig. 15 is a section of the completed seal with the protector plate therein.

Similar characters designate like parts throughout the several figures of the drawings.

In the drawings, 10 represents a bed mounted on any suitable supports such as the legs 11 and provided with the upwardly extending guide members 12 in the upper end of which is mounted a revoluble crank shaft 13, the outer end of which is preferably supported in a bracket 14 and has secured thereto a pulley 15 through which power is imparted by means of the belt 16 to said crank shaft 13. The cranks 17 formed upon or secured to the shaft 13 are connected by links 18 to a member 19 adapted to be vertically reciprocated on the guides 12 during the revolution of the shaft 13. The crank shaft 13 has also secured thereto a bevel gear 20 meshing with a similar bevel gear 21 secured to a vertical shaft 22 having at its upper end a bearing 23 in the bracket 14. Keyed to the lower

end of this shaft is a large gear 24 meshing with a smaller gear 25 supported upon a stud 26 secured to the under side of the bed 10. The hub of the gear 25 has formed thereon a crank arm 27, the outer end of which is provided with a roller adapted to engage with the radial slots 28 in a disk 29 revolubly mounted upon the lower end of the shaft 22 and thus cause an intermittent movement of a small gear 30 formed upon and movable with said disk plate 29. This smaller gear 30 meshes with a large gear 31 keyed to the shaft 32, shown in dotted lines in Fig. 3, the upper end of said shaft 32 having secured thereto so as to be revoluble therewith a large dial plate 33. The gear 31 also meshes with a smaller gear 34 secured upon the lower end of the shaft 35 mounted in a vertical bearing 36 secured to the side of the bed plate 10, the upper end of said shaft 35 having keyed thereto a smaller dial plate 37, the lower face of which coincides with the upper face of the dial plate 33.

The dial plate 33 rests upon a bolster plate 38 secured to the upper face of the bed 10, the upper face of the dial plate 33 being provided with a plurality of pockets 39, each one of which is adapted to receive a cup-shaped metal cap 40 such as is shown in Figs. 13 and 15. These cup-shaped members are fed into the pockets 39 at the front of the machine in any well-known manner either by any well-known automatic feeding device or they may be fed thereto by hand, if desired. Preferably these cup-shaped members are fed automatically to the pockets 39 at the point 41, as indicated in Fig. 3 of the drawings, and then by the rotation of the dial plate 33 they are carried by the intermittent movements of said dial plate to the position 42, indicated in Fig. 3, where each in its turn receives a circular disk of adhesive material cut from any suitable source of supply and placed in the bottom of the cup-shaped member by the downward movement of the plunger 43 secured to the under face of the reciprocating member 19. The further rotation of the dial plate carries the cup-shaped members successively to the position indicated at 44 on Fig. 3 where each cup-shaped member is supplied with a cork filling, these disks of cork being fed thereto in any well-known manner, either automatically or otherwise, as desired. The metal cup-shaped member, with the disk of adhesive material and the layer of cork therein is then moved with the dial 33 into a position beneath the bunter 45 which, in the downward movement of the reciprocating frame 19, forces the cork filling onto the adhesive material and insures a proper seating of the same within said cup-shaped member. A pilot pin 46 securely attached to the reciprocating frame 19 is adapted, in the downward movement of said frame 19 to enter one of the holes 47 of the dial plate 33 and thereby position the dial plate on the completion of each of its successive movements, thus insuring steadiness during the various operations and also acting as a lock to prevent further movement of said dial plate until the operations in progress are completed. When the cap has passed from beneath the bunter 45 it is in condition to receive the metal facing or protector plate which constitutes one of the most important features of this invention. In order to provide for this a grooved cutter 46 is adjustably secured to the reciprocating frame 19 and in its downward movement the cutting edge thereon cuts into the layer of cork 47 within the metal cup-shaped member 40 an annular groove 48, when said cup-shaped member 40 is in the position 49 indicated in Fig. 3 of the drawings. The next movement of the dial 33 carries the cup-shaped member 40 with its disk of adhesive material 50 and its lining of cork 47 having the annular groove 48 cut in its upper face into the position 51 beneath an open ended pocket 52 in the small dial 37, the pocket 52 and the pocket 39 being in axial alinement and also in axial alinement with a plunger 53 secured to the under face of the reciprocating member 19. This plunger 53 has slidably mounted thereon a sleeve 54 provided with slots 55 into which project the ends of a pin 56 passing through said plunger 53 to limit the movement of said sleeve in either direction, said sleeve being normally retained in the position shown in Fig. 12 of the drawings by means of a spiral spring 57 surrounding said plunger 53. When the cup-shaped member 40 is thus positioned at 51 beneath the pocket 52, the pocket 52 contains a metal protector plate 58 provided with an annular flange 59 which extends downwardly in said pocket 52 in position to be forced by the downward movement of the plunger 53 into the annular groove 48 formed in the cork disk 47 in the cup-shaped member 40, thus leaving the cup-shaped member provided with the protector plate 58, as shown in Fig. 15 of the drawings, this protector plate, when the caps are in use, being adapted to cover the opening of the mouth of the bottle to which the cap or seal is secured to prevent the contents of the bottle from acting upon the cork lining to cause its deterioration and consequential disintegration which permits small particles of cork to drop into the contents of the bottle to its manifest injury. During this operation the pilot pin 60 secured to the reciprocating member 19 enters one of the holes 61 in the small dial 37 and accurately registers the dial during the operation of the plunger 53, the sleeve 54 being retracted against the tension of the spring 57 during the opera-

tion of the plunger. The next movement of the dial 33 brings the cup-shaped member 40 to the position 63 indicated in Fig. 3 of the drawing in which position the downward movement of the plunger 64 secured to the reciprocating member 19 acts upon the protector plate 58 to slightly cup the same, as indicated in Fig. 15 of the drawings.

The bottoms of each of the pockets 39 of the dial plate 33 are formed by the plungers 65 traveling in an annular groove 66 in the bolster plate 38. In the bottom of the groove 66 is secured a cam member 67 slightly in advance of the position 63, indicated in Fig. 3 of the drawings, so that as the disk 33 continues to rotate after the metal protector plate 58 has been subjected to the action of the bunter 64 the cam 67 will act upon these plungers 65 to elevate them and force the cup-shaped members 40 out of the pockets 39 in the dial plate 33. While the plungers 65 are in such elevated position upon the cam 67 and supporting the cup-shaped members 40 these members 40 come into contact with a deflector plate 68 which causes the cup-shaped members to be dropped into an inclined chute 69, the opposite end of which delivers the cup-shaped members to a continuous chain carrier 70, each link of which is provided with a central opening and is constructed to receive one of the cup-shaped members 40. The plungers 65 are returned to their seats by means of a bunter pin 45* similar to 45 which insures a proper pocket being ready to receive the cups at the feeding point 41. The chain 70 is supported by a tray 71 having side flanges or guides, said tray being provided with two long slots or perforations 71ª and 71ᵇ extending through the bottom thereof. Beneath one of the perforations 71ª in the bottom of the tray 71 is a slotted gas pipe 72 to which gas is supplied through the pipe 73 from any suitable source. When the gas passing from the slots or jets in the pipe 72 is ignited and the flames therefrom come into contact with the outer face of the cup-shaped member 40 supported by the perforated chain carrier 70, the heat from said gas flames will act upon the adhesive material contained within the cup-shaped members 40 and soften the same, making it more tacky. Immediately above the chain 70 is another endless chain 74 provided with a plurality of pressure members 75 adapted to enter the cup-shaped member 40 and force the cork disk 47 and disk of adhesive 50 into closer contact with each other and the inner end of the member 40. After the members 40 have been subjected to the heat from the gas jets of the pipe 72 the chain 74 comes into contact with a pressure plate 76 located over the second slot or perforation 71ᵇ in the tray 71 and adjustable toward and from the chain 70 and its track or tray 71 by means of the adjusting screws 77 in the frames 78. By means of these adjusting screws 77 the position of the pressure plate may be regulated relative to the track or tray 71 and beneath this second slot is a pipe 79 provided at its top with a plurality of slots through which cold air may pass or be forced from any suitable source of supply communicating with said pipe 79 by the pipe 80 to set the adhesive while under pressure. It is obvious therefore that as the members 40 pass over the gas flames the adhesive material is subjected to the heat therefrom and becomes tacky and when in this tacky condition the continued movement of the carriers 70 and 74 causes the pressure members 75, contacting with the protector plate 58 to be pressed downwardly to insure the firm adherence of the cork to the cap through the instrumentalities of the disk of adhesive material, and while pressure is being thus subjected to the contents of the cup-shaped member 40, the exterior of the cup-shaped member is being subjected to a blast of cold air to cool the same and insure the adherence of the various members of the seal. As the chain 70 passes over the sprocket wheel 81, the finished caps fall off into any suitable receptacle. The sprocket wheel 81 is revolubly mounted upon a shaft 82 mounted in any suitable bearing in a framework 83, the opposite end of the chain 70 being mounted upon a similar sprocket wheel 84 on a shaft 85 driven by means of a pulley 96 which is secured thereon. A gear 86 secured to the shaft 85 meshes with a similar gear 87 on the shaft 88 and on this shaft 88 is a sprocket wheel 89 connected by means of a sprocket chain 90 to a sprocket wheel 91 on a shaft 92 mounted in the framework 83. This shaft 92 has also mounted thereon a sprocket wheel wheel 93 driving the endless chain 74, the opposite end of which is mounted upon the sprocket wheel 94 on the shaft 95. It is obvious that by this construction of driving mechanism the chains 70 and 74 are driven in unison.

Secured to the bed 10 are suitable brackets 97—97* supporting an auxiliary table 98, one end of which is provided with suitable bearings 99 for a shaft 100 upon which is revolubly mounted a reel 101 containing a strip 102 of suitable facing material such as tin, which is adapted to travel along a groove in the upper face of the auxiliary table 98 which extends diametrically of the dial plate 37 and slightly above the same. This strip of material 102 is fed along said groove in the table 98 by means of a suitable feeding mechanism, to be hereinafter described, beneath suitable devices for punching out from the strip of material a flat disk and then by means of forming tools acting in conjunction with the aforesaid punch, upsetting the edges of the disk

to form an annular flange of the right diameter to fit the annular groove in the cork filling.

Secured to the upper face of the auxiliary table 98 is a bearing 103 in which is mounted a punch 104, the upper end of which is provided with an annular groove which is engaged by a forked member 105 secured by screws 106 to the reciprocating member 19. The lower end of the punch 104 is provided with a cylindrical chamber in which is mounted a plunger 107, the stem of which is provided with a pin 108 extending into a diametral slot 109 in said punch, this pin 108 co-acting with the ends of the slot 109 to limit the movement of the plunger 107 in either direction. A spring 110 in a suitable socket in the punch 104 normally retains the plunger in its lowermost position, as indicated in Fig. 4, with the pin 108 at the lower end of the slot 109. The auxiliary table 98 is provided with an opening therethrough in axial line with said punch 104 and has set therein an annular member 111 with a shearing edge, the interior diameter of which coincides with the exterior diameter of the punch 104. It is obvious, therefore, that as the strip of material 102 is fed along the groove in the upper face of the auxiliary table 98 over the annular member 111, that any downward movement of the reciprocating member 19 will cause the punch 104 to operate upon the strip of material and punch therefrom a circular disk or blank 112 suitable to form the protector plate 58. The spring 110 is only strong enough to force the plunger 107 downward after the cutting of the blank is completed, this plunger 107 in its downward movement resting upon the strip of material until the punch 104 has performed its function in cutting the blank 112 from said strip. In axial line with said plunger 107 is an auxiliary plunger 113 sliding in the bracket 97*, this plunger 113 being forced upwardly by means of a lever 114 pivoted at 115 to a bracket 116 secured to the lower side of the bed 10. A rod 117, pivoted to the opposite end of said lever 114 and having a bearing in an ear 118 formed upon the bed 10, is normally held in raised position by means of a spring 119 interposed between said ear 118 and a collar 120 secured to said rod 117.

The upper end of the rod 117 extends into a socket 121 secured to a rod 122 attached to the under side of the reciprocating member 19. The normal positions of the punch 104 and plungers 107 and 113 are as indicated in Fig. 4 of the drawings. When, however, the reciprocating member 19 moves downwardly the forked member 105 on this member acts upon the punch 104 and moves it downwardly into contact with the strip of material 102 and continuing its downward movement the punch coöperating with the shearing edge of the annular member 111 cuts from the strip of material a blank 112 which is forced downwardly in advance of the punch 104 and the spring-pressed plunger 107 therein until the end of the punch has nearly reached the end of its downward movement. At this time the downward movement of the rod 122 will cause the lower end of the socket 121 to come into contact with the upper end of the rod 117 and cause the lever 114 to operate so that the plunger 113 will be raised and come into contact with the blank 112 and force this blank against the plunger 107 causing the spring 110 to be compressed, this operation causing the flange 59 to be formed upon the blank 112, as indicated in Figs. 8, 10, and 11 of the drawings. As the member 19 moves upwardly the auxiliary plunger 113 will be moved downwardly as indicated in Fig. 11 and the punch 104 will be moved upwardly as indicated in the same figure. The spring 110, however, will have sufficient tension to cause the plunger 107 to move downwardly at this time following the movement of the plunger 113 until the pin 108 reaches the lower end of the slot 109, when further downward movement of the plunger 107 and the protector plate 58 will cease while the auxiliary plunger 113 continuing its downward movement will separate itself from the protector plate 58 and return to its normal position. A continuation of the upward movement of the punch 104 will act upon the pin 108 to raise the plunger 107 and return both the punch 104 and the plunger 107 to their normal positions leaving the protector plate 58 within the cylindrical chamber of one of the annular members 123, one of which is located in each of a plurality of cylindrical openings in the dial plate 37. Each of the members 123 is provided with an outwardly extending flange 124 which by a spring 125 is forced into engagement with a retaining ring 126 set into the upper face of the dial plate 37. The lower face of the member 123 is provided with an annular wedge-shaped lip 127, the diameter of which coincides with the diameter of the cutting edge of the groove cutter 46. When the punch 104 and plungers 107 and 113 have returned to their normal positions and the protector plate 58 has been formed and left within the member 123, a rotation of the dial plate 37 will bring the member 58 into the position 51 indicated on Fig. 3 of the drawings, beneath the plunger 53. The downward movement of the member 19 carries with it by means of the spring 57 the sleeve 54 which comes into contact with the upper end of the annular member 123 and owing to the greater tension of the spring 57 over that of the spring 125 the member 123 is forced downwardly so that the wedge-shaped annular lip 127

thereon will enter the annular groove 48 in the cork lining 47 and open up this groove 48 for the admission of the flange 59 of said cup-shaped protector plate 58, the plunger 53 coming into contact with the outer face of this member 58 and forcing it into the groove 48 as soon as it has been opened up by the wedge-shaped annular lip 127. The upward movement of the member 19 returns the plunger 53 and the spring-pressed members 54 and 123 to their normal positions and when this has been accomplished the cup-shaped member 40 with its cork lining and protector plate therein is free to be moved in its pocket in the dial 33 into other positions and finally delivered from said dial onto the endless chains where it is subjected to heat pressure and then a cooling blast, as has been previously described.

A strip 102 is fed from the reel 101 along the groove in the upper face of the auxiliary table 98 by means of a feeding mechanism of any well-known pinch-feed type. The reciprocating movement is given to the feeding mechanism by means of a bell crank lever 128 pivoted at 129, one arm of which is forked and supports the trunnions 130 of the upper jaw 131 of the feeding mechanism while the other arm has pivotally connected thereto a rod 132 having a bearing in an ear 133 secured to the under side of the reciprocating member 19. Beneath the ear 133 is a collar 134 secured to said rod 132, while said rod is also provided with another collar 135 above said ear between which and said collar is interposed a spring 136, which, by its tension, keeps the rod 132 in a raised position until in the downward movement of the reciprocating member 19, the ear 133 comes into contact with the collar 134 and moves the bell crank lever 128 about its pivot 129 until it engages with the shoulder 137, which forms a stop to limit the movement of the bell crank lever in that direction. On the upward movement of the member 19 the spring 136 will act upon the collar 135 to move the bell crank lever in the opposite direction until it engages the stop 138, these stops 137—138 limiting the movement of feed of the strip 102 during any single reciprocation of the member 19. During the movement of the bell crank lever 128 about its pivot toward the stop 137 the jaw 131 will be opened by the action of the ear 139 pivotally mounted upon the reciprocating member 19 coming into contact with the spring 140 resting upon the collar 141 secured to a rod 142 pivotally secured to the rearwardly extending arm of the jaw 131, said rod 142 passing through an ear 139 and being provided with a collar 143 above said ear 139 between which and said collar is interposed a second spring 144. It is obvious that the spring 144 normally retains the jaw 131 in contact with the strip of material 102 and pinches the same between it and the fixed jaw during the forward movement of the lever 128, thus positively feeding the strip of material 102 the required distance along the groove in the auxiliary plate.

This provides a very effective apparatus whereby the various elements forming the cap may be assembled together and fixedly secured in position while a protector plate is formed during the same operation and fixed to the lining to the bottle cap in such position that when in use the cork lining to the cap will not be exposed to the action of the contents of the bottle to which the cap is secured.

It is believed that the operation and many advantages of the invention will be thoroughly understood from the foregoing.

Having thus described my invention, I claim:

1. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a flanged bottle cap containing a layer of cork; means for forcing into the face of said layer of cork a metal plate, the outer edge of which is removed from the inner wall of said flange; and mechanism for moving said support and forcing means relative to each other and positioning them in axial alinement during the insertion of said metal plate.

2. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a flanged bottle cap containing a layer of cork; means for forcing into the face of said layer of cork a flanged metal plate, the outer wall of which is separated from the inner wall of the flange on said cap; and mechanism for moving said support and forcing means relative to each other and positioning them in axial alinement during the insertion of said metal plate.

3. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a flanged bottle cap containing a layer of cork; means for forcing into the center of the face of said layer of cork a metal plate of less diameter than said cap, the outer edge of which is separated from the flange of said cap; and mechanism for moving said support and forcing means relative to each other and positioning them in axial alinement during the insertion of said metal plate.

4. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a bottle cap containing a layer of cork; means for forming a circular flanged metal plate; means for positioning said plate with its center centrally disposed relative to said bottle cap and means for forcing the flange of said plate into said cork.

5. In an apparatus of the class described, the combination of a movable support provided with a pocket adapted to receive a bottle cap containing a layer of cork; mechanism for forming a flange upon a circular metal plate; means for positioning said cap beneath said flanged plate with their centers opposite each other; and means for forcing said flange into said cork.

6. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a bottle cap containing a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; and a device for forcing the flange of said plate into said groove.

7. In an apparatus of the class described, the combination of a movable support provided with a pocket adapted to receive a bottle cap containing a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; and means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device.

8. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; and means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate forcing device.

9. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; and means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device.

10. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beenath said groove-cutting device and then beneath said plate-forcing device; and means for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap.

11. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; and a series of gas jets for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap.

12. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; a series of gas jets; and means for carrying said caps over said jets to permit the heat therefrom to act upon said adhesive.

13. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; means for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap; and means for applying pressure to the cork while the adhesive is in a heated state.

14. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to

successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; means for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap; means for applying pressure to the cork while the adhesive is in a heated state; and means for cooling said cap.

15. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; means for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap; means for applying pressure to the cork while the adhesive is in a heated state; and means for cooling said cap while pressure is applied thereto.

16. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; a series of gas jets; and a chain for carrying said caps over said jets to permit the heat therefrom to act upon said adhesive.

17. In an apparatus of the class described, the combination of a movable carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; means for supplying heat located beneath said movable carrier; and means for moving said carrier into position for the caps thereon to be acted upon by said heat.

18. In an apparatus of the class described, the combination of a movable carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; means for supplying heat located beneath said movable carrier; means for moving said carrier into position for the caps thereon to be acted upon by said heat; and means for applying pressure to said caps while said adhesive is in heated state.

19. In an apparatus of the class described, the combination of a movable carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; means for supplying heat located beneath said carrier; means for moving said carrier into position for the caps thereon to be acted upon by said heat; means for applying pressure to said caps while said adhesive is in heated state; and means located beneath said carrier for cooling said caps while under pressure.

20. In an apparatus of the class described, the combination of an endless chain carrier each link of which is adapted to support intermediate its ends a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; means for supplying heat; and means for moving said carrier into position for the caps to be acted upon by said heat.

21. In an apparatus of the class described, the combination of an endless movable carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; a plurality of gas jets for supplying heat; and means for moving said carrier into position for the caps thereon to be acted upon by said heat.

22. In an apparatus of the class described, the combination of an endless carrier each link of which is provided with a recess in its upper face intermediate its ends adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; a plurality of gas jets for supplying heat located beneath said carrier; means for moving said carrier into position for the caps to be acted upon by said heat; and means for subsequently cooling said caps.

23. In an apparatus of the class described, the combination of an endless movable carrier provided with a plurality of recesses in its upper face each adapted to support a bottle cap containing a layer of cork and a disk of adhesive; a plurality of gas jets; a perforated air pipe for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; and means moving in unison with said carrier for applying pressure to said cork layers in said caps while passing over said air pipe.

24. In an apparatus of the class described, the combination of an endless chain carrier each link of which is provided in its upper face intermediate its ends with a recess adapted to support and position a bottle cap containing a layer of cork and a disk of adhesive; a plurality of gas jets located be-

neath said carrier; a perforated air pipe also located beneath said carrier for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; supporting guides for said carrier; and means moving in unison with and above said carrier for applying pressure to said cork layers in said caps while passing over said air pipe.

25. In an apparatus of the class described, the combination of an endless chain carrier each link of which is provided in its upper face intermediate its ends with a recess adapted to support a bottle cap containing a layer of cork and a disk of adhesive; a plurality of gas jets located beneath said carrier; a perforated air pipe also located beneath said carrier adapted to supply a blast of cold air; means for moving said carrier over said jets and then over said air pipe; perforated supporting guides for said carrier; and means moving in unison with said carrier for applying pressure to said cork layers in said caps while passing over said air pipe.

26. In an apparatus of the class described, the combination of an endless carrier provided in its upper face intermediate its ends with a plurality of recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive; a plurality of gas jets located beneath said carrier; a perforated air pipe also located beneath said carrier for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; a second carrier moving in unison with said endless carrier and provided with a plurality of pressure members adapted to enter said caps; and a pressure bar above said air pipe adapted to act on said second carrier to apply pressure to the cork layers in said caps while passing over said air pipe.

27. In an apparatus of the class described, the combination of a carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive; guides therefor; a plurality of gas jets; a perforated air pipe for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; a second carrier provided with a plurality of pressure members adapted to enter said caps; a pressure bar above said air pipe adapted to act on said second carrier to apply pressure to the cork layers in said caps while passing over said air pipe; and means for adjusting said pressure bar toward and from said guides.

28. In an apparatus of the class described, the combination of a carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive; guides therefor; a plurality of gas jets; a perforated air pipe for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; a second carrier provided with a plurality of pressure members adapted to enter said caps; a pressure bar above said air pipe adapted to act on said second carrier to apply pressure to the cork layers in said caps while passing over said air pipe; means for adjusting said pressure bar toward and from said guides; and mechanism interposed between said carriers to drive them in unison.

29. In an apparatus of the class described, the combination of a perforated table; a device for feeding a strip of material into position over the perforation in said table; a reciprocating punch adapted to enter said perforation and cut a blank from said strip of material; a spring-pressed plunger in said punch, with its outer end normally beyond the end of said punch but adapted to be withdrawn a limited distance within said punch; means coöperating with said punch and plunger and in axial alinement therewith to form a flange on said blank; and a rotatable member beneath said table provided with a pocket adapted to receive said blank.

30. In an apparatus of the class described, the combination of a perforated table; a device for feeding a strip of material into position over the perforation in said table; a reciprocating punch adapted to enter said perforation and cut a blank from said strip of material; a spring-pressed plunger in said punch, with its outer end normally beyond the end of said punch but adapted to be withdrawn a limited distance within said punch; a second plunger coöperating with said punch and plunger and in axial alinement therewith to form a flange on said blank; and a rotatable member beneath said table provided with a pocket adapted to receive said blank.

31. In an apparatus of the class described, the combination of a perforated table; a device for feeding a strip of material into position over the perforation in said table; a reciprocating punch adapted to enter said perforation and cut a blank from said strip of material; a spring-pressed plunger in said punch, with its outer end normally beyond the end of said punch but adapted to be withdrawn a limited distance within said punch; means coöperating with said punch and plunger to form a flange on said blank; a rotatable member beneath said table provided with a yielding annular member adapted to receive said flanged blank and provided with an annular lip on its under face; a support for a bottle cap provided

with a lining of cork having an annular groove in its face; and a reciprocating member adapted first to force said lip into said annular groove in the cork lining of said cap and then force the flange of said blank into said groove.

32. In an apparatus of the class described, the combination of a perforated table; a device for feeding a strip of material into position over said perforation in said table; a reciprocating punch adapted to enter said perforation and cut a blank from said strip of material; plungers on opposite sides of said blank for forming a flange thereon; a rotatable plate beneath said table provided with a pocket adapted to receive said flanged blank; means for depositing said flanged blank in said pocket; means for rotating said plate to position said pocket above a supported cork-lined bottle cap; a plunger above said pocket; and means for operating said plunger to force the flanged blank from said pocket into the cork lining of said cap.

33. In an apparatus of the class described, the combination of a reciprocating member; a perforated table beneath said member; a device for feeding a strip of material over and of the same diameter as the perforation in said table; a punch over said perforation moved by said reciprocating member and adapted to cut a blank from said strip of material; a spring-pressed plunger within said punch of the same diameter as the finished cap to be made from said blank; means for limiting the movement of said plunger in either direction relative to said punch; a second plunger beneath said perforation having a radius less than the radius of the upper plunger equal to the thickness of said strip of material; a pivoted lever connected to said second plunger; and a divided member between said lever and reciprocating member providing a means whereby only the latter part of the movement of said reciprocating member is imparted to said second plunger.

34. In an apparatus of the class described, the combination of a support for a bottle cap containing a cork lining; means for cutting an annular groove in said cork; means for forming a flanged metal protecting plate; means for separating the walls of said annular groove; and means for forcing said flange of said plate into said groove.

35. In an apparatus of the class described, the combination of a support for a bottle cap containing a cork lining; means for cutting an annular groove in said cork; means for forming a flanged metal protecting plate; means for separating the walls of said annular groove; and means for forcing said flange of said plate into said groove while the walls of said groove are separated.

36. In an apparatus of the class described, the combination of a support for a bottle cap containing a cork lining; means for cutting an annular groove in said cork; means for forming a flanged metal protecting plate; a member with an annular wedge lip for separating the walls of said annular groove; and means for forcing said flange of said plate into said groove while said wedge lip remains in said groove.

37. In an apparatus of the class described, the combination of a support for a bottle cap containing a cork lining; of means for cutting an annular groove in said cork; means for forming a flanged metal protecting plate; a member with an annular wedge lip for separating the walls of said annular groove; and a reciprocating plunger for forcing said flange of said plate into said groove while said wedge lip remains in said groove.

38. In an apparatus of the class described, the combination of a rotatable dial provided with an opening therethrough; a support for said dial provided with an annular groove; a plunger in said opening adapted to travel in said groove with its top forming the bottom of a pocket adapted to receive an inverted bottle cap lined with cork; means for subjecting the cork to pressure; means for inserting a metal protector plate into said cork; and a cam in said groove adapted to lift said plunger in the rotation of said dial and remove said cap from said pocket.

39. In an apparatus of the class described, the combination of two rotatable dials, the edge of one of which projects over the edge of the other and is provided with a pocket extending therethrough adapted to receive a protector plate, while the edge of the other is provided with a plurality of pockets each adapted to receive a bottle cap lined with cork; a reciprocating member above said dials; pins on said member for preventing the rotation of said dials during the reciprocation of said member; a cutter on said member for cutting an annular groove in said cork; means for supplying a protector plate to the pocket in the upper dial; and means secured to said reciprocating member for forcing said protector plate from said pocket into said cork.

40. In an apparatus of the class described, the combination of two rotatable dials, the edge of one of which projects over the edge of the other and is provided with a pocket extending therethrough adapted to receive a protector plate, while the edge of the other is provided with a plurality of pockets each adapted to receive a bottle cap lined with cork; a reciprocating member above said dials; pins on said member for preventing the rotation of said dials during the reciprocation of said member; a cutter on said

member for cutting an annular groove in said cork; means for supplying a protector plate to the pocket in the upper dial, means secured to said reciprocating member for forcing said protector plate from said pocket into said cork; and means for expelling said caps from said pockets.

Signed by me at 4 Post Office Sq., Boston, Mass., this 10th day of April, 1909.

GEORGE M. C. NIELSEN.

Witnesses:
WALTER E. LOMBARD,
HOWARD HANSCOM.

BLANK

PAGE

1659

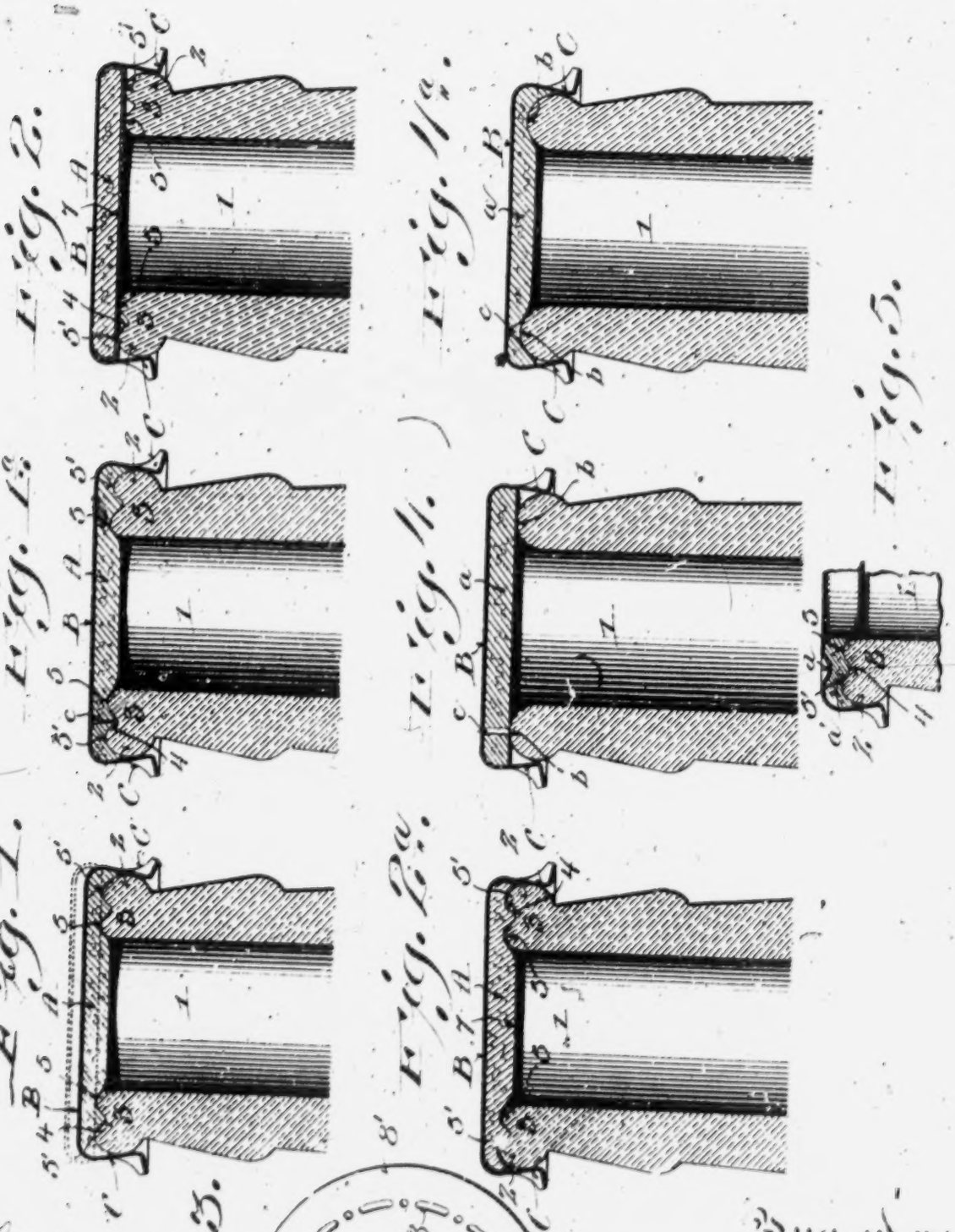
G. F. KNOX.

CROWN CORK SEAL.

APPLICATION FILED MAR. 6, 1913. RENEWED JAN. 13, 1915.

1,129,578.

Patented Feb. 23, 1915.



Witnesses:

Inventor:

George F. Knox

by Clapham & Young

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE F. KNOX, OF MILWAUKEE, WISCONSIN.

CROWN-CORK SEAL.

1,129,578. Specification of Letters Patent. Patented Feb. 23, 1915.

Application filed March 6, 1913, Serial No. 752,370. Renewed January 13, 1915. Serial No. 2,071.

To all whom it may concern:

Be it known that I, GEORGE F. KNOX, a subject of the King of England, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Crown-Cork Seals; and I do hereby declare that the following is a full, clear, and exact description thereof.

The primary object of my invention is to provide simple means for increasing the efficiency in sealing vessels wherein the crown cork type is employed, such increased efficiency being at the same time accomplished without increasing the cost of manufacture.

Specific objects of my invention are to provide two or more annular contact points about the mouth rim of a vessel or bottle, which points are adapted to be engaged by the cork disk that is employed in conjunction with the standard metallic crown, whereby the contact points referred to constitute a multiple seat which will thus insure the desired hermetic seal, and to provide a non-porous facing sheet for the cork disk, wherein the seal is employed in bottling mineral waters, charged beverages or the like, the facing sheet serving to prevent contact of the liquid with the cork body and its consequent detrimental effects.

With the above and other minor objects in view the invention consists in certain peculiarities of construction and combination of parts as set forth hereinafter with reference to the accompanying illustrations and subsequently claimed.

In the drawings Figure 1 represents an enlarged sectional elevation of a bottle-head and cap-closure therefor embodying the features of my invention; Fig. 1ª, a similar fragmentary section, the section being taken upon a line intersecting a pore of the cork filler to more clearly illustrate the effect of closing said pore incidental to pressure being applied to the cap; Fig. 2, a similar fragmentary sectional view of a cap closure embodying the features of my invention, showing the application thereto of a pliable facing sheet, whereby the cork is insulated from the liquid contained within the bottle; Fig. 2ª, a similar sectional view illustrating the cap-closure after it is subjected to pressure and expansion by heat, whereby the facing sheet is separated at the point subjected to the greatest strain; Fig. 3, a fragmentary plan view of one form of pliable facing sheet embodying the features of my invention; Figs. 4 and 4ª, fragmentary sectional views exemplifying a sealing operation wherein a standard type of crown cork and bottle is employed, the said views illustrating the effect produced upon a porous cork in conjunction with the rim of a bottle having a single point of contact, and Fig. 5, a sectional view of another form of my invention.

Referring to the exemplification of the prior art as illustrated in Figs. 4 and 4ª of the drawings, in ordinary crown corking and sealing it has been found in practice that owing to the spongy or porous consistency of the cork disk *a* when said disk is subjected to sufficient pressure upon the high face *b* of the curved rim of a bottle-head, the said curved rim constitutes a single point of contact or ridge. In such cases the tendency of the cork disk is to break or open at the point of contact and thus the seal is rendered imperfect, resulting in a large percentage of the bottled product being damaged by exposure to atmospheric conditions. Thus it will be seen that unless the face of the cork be absolutely perfect, the single contact point of its engagement with the rim of the bottle will not effect a hermetic seal. This tendency of the cork disk to break at the seating point or ridge is still further increased should a hole *c*, constituting one of the pores of the disk, be alined with the seating point, in which instance the pressure and expansion or swelling of said disk due to steaming, tends to open up or exaggerate the pore, causing breakage of the disk at this weakened point, whereby leakage will occur about the mouth-rim as indicated by the arrow in Fig. 4ª. Thus the purpose of my invention is to overcome the above objections and supply a multiplicity of seating faces whereby, should a hermetic seal not be effected by the first one of the seating faces or beads, the leakage will be cut off by one or the other of the auxiliary contact points, there being preferably three in number.

Referring by characters to the drawings, Figs. 1 to 3 inclusive, 1 represents a portion of the neck and head of a bottle, and 2 the crown-bead thereof, which bead merges into a rim 3 that is formed about the bottle mouth. The rim 3, as shown, is provided

with an intermediate annular V-shaped groove 4, which groove divides said rim into parallel inner and outer semicircular beads 5 and 5′ constituting high smooth points of contact. Hence it will be seen that the rim face is formed with a centrally disposed V-shaped annular groove, the inclined walls of which are tangentially merged into the opposite inner circular walls of the beads, whereby the high surfaces are smoothly rounded and are joined by the tangential faces constituting the wall grooves.

A represents a standard cork disk that is seated within the usual metallic crown B, the apron C of which crown is adapted to be contracted about the mouth rim 3 by subjecting the crown to inward pressure through a suitable die, co-incident with a downward pressure thereof, this capping operation being ordinarily employed and forms no part of my invention.

In Fig. 1 the cork disk A is shown in dotted lines, in the position it assumes prior to pressure being applied thereto, with its lower face resting upon the high points or beads of the mouth rim, the formation assumed by said disk, after it is subjected to pressure, being shown in full lines in said view. Hence it is apparent that when the cork disk is expanded it will fill out all the crevices about the face of the rim, whereby it is forced snugly down into the groove 4 and also about the walls and high points of the rim beads 5 and 5′, whereby three distinct points of contact between the rim and cork will result and owing to the fact that the center point of contact is upon a lower or different plane than that of the inner and outer contact points, a perfect hermetic seal will result. This seal is rendered impregnable due to the fact that should the first or inner seal between the ridge 5 and cork be defective further leakage of gases or liquid will be cut off by the base of the groove, which forms a central seal in connection with the expanded cork. It follows that should this seal in turn be defective that the outer seal between the cork and ridge 5 would produce the desired results, making in all a triple seal which for practical purposes is sufficient to insure perfect bottling under the most disadvantageous conditions.

It is obvious that, owing to the uninterrupted high and low surfaces of the rim, when the crown cork is expanded in the usual manner by heat, the particles of the swollen cork are capable of flowing in both directions over the semicircular beads to fill the V-shaped groove without any tendency of breaking the cork member.

To prevent the contamination of mineral waters or the like through contact with the cork disk I provide a pliable facing sheet 7 for the disk as shown in Fig. 2, the same being preferably composed of tinfoil or like substance and is of an approximate diameter corresponding to the diameter of the disk, being shown lapped about its edges.

As shown in Fig. 2, when the crown and cork disk, equipped with the metallic facing sheet, is inserted over the mouth of the bottle and thereafter subjected to pressure, as shown in Fig. 2ª, the result of said pressure and steaming will cause the cork to swell downwardly to fill the annular groove 4 as previously stated. It is apparent that such downward swell of the cork within the groove will cause the facing sheet 7 to break at this point due to the fact that the high ridges 5 and 5′ on either side of the groove have, in conjunction with the cork disk, effected a double grip upon said facing sheet. When this separation of the facing sheet takes place the cork fiber at the base of the groove is exposed, whereby a seal is effected at this point between the naked cork and vitreous material from which the bottles or vessels are ordinarily formed. It is also apparent that while a cork joint is effected at the center of the rim, the remaining two high points of contact formed by the ridges 5 and 5′ are sealed metallically by the interposed surfaces of the facing sheet, the inner metallic seal being sufficient to prevent the leakage of liquid from the vessel or its contact with the cork surface, whereby acids are generated incidental to the exposure of the cork fiber with said liquids.

As shown in Fig. 3, I may, in some instances, provide the pliable metallic facing sheet 7 with some form of circular perforation 8 adjacent to its edge or otherwise score the sheet in such manner that it will separate under pressure and expansion of the cork, upon the weakened line, the separation leaving the facing sheet in the form of a disk, the edges of which are gripped by the ridge 5 and a detachable ring portion 8′ will form a metallic outer sealing joint in conjunction with the ridge 5′.

Referring to Fig. 1ª of the drawings the cork disk is illustrated as having a hole or pore *c* therein, which pore is centrally alined with relation to the rim-groove 4. In this position the pore *c* referred to will tend to close up under the compression and steaming operation incidental to capping the bottle, due to the fact that the fiber of the cork in expanding into the groove, will flow downward as indicated upon opposite sides of said pore, thus tending to contract the same instead of expanding as in instances previously described wherein a pore of the cork is inadvertently alined with the single compression point of a bottle rim.

It is also apparent, as shown in Fig. 5, that the crown cap may be formed with a circular male bead *d* which will forcibly mold the cork disk downwardly into the

groove 4 of the vessel mouth rim. In this instance the cork disk is made in the form of a ring *a'* and the center portion of the crown B is depressed in such manner that when the closure is seated against the bottle rim the depressed metallic portion of the crown enters the mouth of the bottle and thus the disk *a'* or gasket is housed whereby fine particles of the cork which would tend to slough off are prevented from dropping into the liquid. The depressed portion of the crown cap also serves to present a metallic face to the liquid which is desirable as previously stated when the container is used in connection with mineral waters or the like.

I claim:

1. A vessel for crown corks having a mouth-rim provided with a closure seat comprising inner and outer semicircular beads, and a centrally disposed annular V-shaped groove, the oblique side-walls of the groove being tangentially merged into the opposite inner terminals of the semicircular beads, whereby a crown cork is capable, when expanded, of unobstructedly flowing in opposite directions about the semicircular beads into the V-shaped groove to fill the same.

2. A seal-joint comprising a vessel-mouth provided with a rim, a plurality of spaced annular sealing surfaces formed in the rim, a cap-inclosed sealing disk adapted to be seated upon the rim, and a pliable metallic facing sheet for the disk interposed between said disk and seating surfaces of the rim, the said sheet being weakened upon a line intermediate of the seating surfaces.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

GEORGE F. KNOX.

Witnesses:

CLEO W. YOUNG,

M. E. DOWNEY.

1663

No. 796,356. PATENTED AUG. 1, 1905.

F. RECHT.

CAP FOR BOTTLES.

APPLICATION FILED MAR. 23, 1905.

Fig. 1.

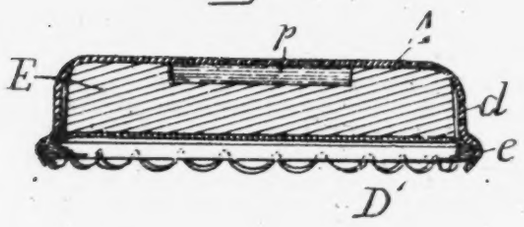


Fig. 2.

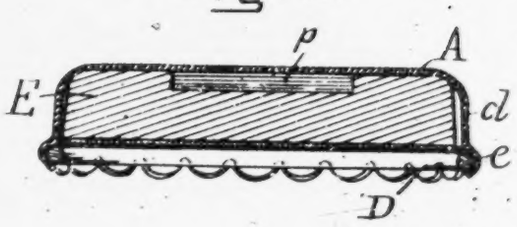


Fig. 3.

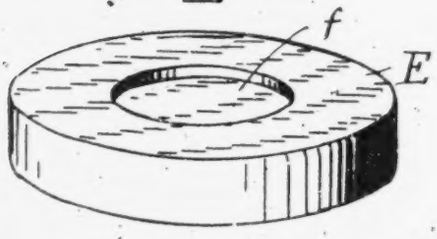


Fig. 4.



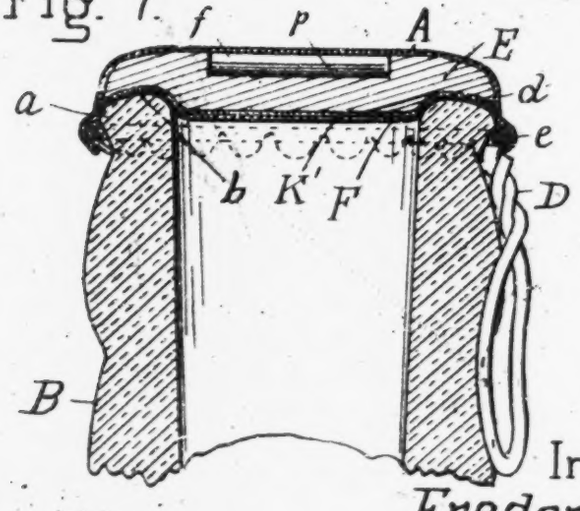
Fig. 5.



Fig. 6.



Fig. 7.



Witnesses:

Chas. L. Courtis

Oscar H. Goodell.

Inventor,

Frederick Recht,

by Samuel W. Balch

Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK RECHT, OF NEW YORK, N. Y., ASSIGNOR TO REX CAP AND CORK COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CAP FOR BOTTLES.

No. 796,356 Specification of Letters Patent. Patented Aug. 1, 1905.

Application filed March 23, 1905. Serial No. 251,697.

To all whom it may concern:

Be it known that I, FREDERICK RECHT, a citizen of the United States of America, and a resident of the borough of Brooklyn, in the city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Caps for Bottles, of which the following is a specification.

This invention is an improvement upon that class of bottle-sealing devices wherein one side of a suitable sealing medium in the form of a flat disk is held in sealing contact with the mouth of a bottle by means of pressure which is maintained against the opposite side of the disk. This pressure is maintained, preferably, by a metal cap, which is locked to the bottle in some suitable manner. The cap is usually formed of tinned iron, commonly known as "sheet-tin," as this possesses the requisite strength, can be readily formed to the required shape, provided with suitable locking devices, and is the least expensive material which possesses these properties to the required degree. The disk, which is the sealing medium and has heretofore usually been of cork, must have several properties—namely, first, compressibility and elasticity—that is to say, elasticity of volume—so that it will readily conform to the mouth of the bottle and maintain a sealing contact; second, tenacity and a sufficiently-uniform structure without exceptionally hard or soft spots and free from cracks or pores; third, resistance to solubility or chemical reaction, which would cause it to taint such liquids as are to be placed in the bottle. These are properties which are present to a sufficient degree in cork only in carefully-selected cork disks and then but partially.

The object of this invention is to secure these properties in whole or in part by suitable substitutes for cork, which possess the above-recited properties in a greater degree and are less expensive. These properties are embodied in a composite disk, wherein the first-named property (elasticity of volume) is provided by a disk, preferably of wood. The second-named property (tenacity) is embodied in a metal having the requisite tenacity and uniform structure, and the third-named property (insolubility) requisite in the material which makes the actual sealing contact with the mouth of the bottle is provided in the selection of the tenacious metal when this is practicable and when not practicable or economical by a facing of foil, which for economy must be used in such thin sheets that it is wanting in the necessary tenacity.

Suitable compressible material, such as vegetable fiber, as cork or wood, is employed as a part of the structure to enable the cap to conform with more certainty to the mouth of the bottle, as such substances possess the required property of elasticity of volume; but they possess this property to the desired degree usually only when saturated with some moistening material the presence of which causes the fiber to swell and the withdrawal of which results in a shrinkage of the fiber. As the latter, if taking place after a cap has been attached to a bottle, would cause the cap to leak, provision for the prevention of such drying is desirable; and it is a further object of my invention to prevent such drying by so constructing the cap that the compressible material is wholly inclosed by metal by reason of the tenacious metal disk being made of such diameter that its periphery will lie in contact with the flange of the cap.

It is also an object of my invention to provide for the further moistening of the compressible material after the application of the cap by the provision of a recess in the compressible material, within which a suitable moistening material in solid form is contained and which will be fused and be absorbed by the compressible material when the bottle is steamed.

In the accompanying sheet of drawings, which forms a part of this application, Figure 1 is a vertical section through a cap in which the disk of metal which affords the requisite tenacity is also the sealing-disk in contact with the mouth of the bottle. Fig. 2 is a vertical section through a cap in which the disk of tenacious material is faced with foil and the foil makes the sealing contact with the mouth of the bottle. Fig. 3 is a perspective view of a disk of wood, which is the disk of compressible and absorbent material preferably employed in the cap. Fig. 4 is a perspective view of the disk of tenacious and insoluble metal employed in the form of caps shown in Fig. 1. Fig. 5 is a perspective view of the disk of tenacious metal employed in the form of caps shown in Fig. 2. Fig. 6 is a perspective view of the disk of foil employed in the form of caps shown in Fig. 2. Fig.

7 is a vertical section through a cap and the mouth of a bottle to which the cap is applied.

The invention is illustrated in connection with a bottle-cap of the general type heretofore patented by me in United States Letters Patent No. 646,627, dated April 3, 1900, and modified as set forth in my pending application for Letters Patent of the United States, Serial No. 223,087, filed September 2, 1904.

The cap A is formed conveniently of tinned iron, preferably of a thickness of about twelve thousandths of an inch for ordinary bottles requiring a cap of about one and one-eighth inches in diameter and applied to the mouth *b* of a bottle B. The bottle-mouth is formed with an outwardly-projecting lip *a*, which surrounds the outer periphery of the mouth of the bottle. The cap has a depending flange *d* and a bead *e*, with an inwardly-facing annular groove formed around the lower margin of the depending flange. A wire D is placed in the groove, and when the cap is placed on the bottle the wire partly underlies the lip of the bottle, and the consequent engagement of the bead with the lip of the bottle, preferably through the interposed wire, securely holds the cap over the mouth of the bottle.

In the form shown in Fig. 1 two disks are employed within the metal cap, so that when the cap is placed over the mouth of a bottle they will be interposed between the cap and the mouth of the bottle. One of the disks is of an absorbent compressible material E, for which I find a soft close-grained wood, such as basswood, well adapted. This wood is preferably employed in a moist form, being saturated with melted paraffin, glycerin, or a heavy oil or other substance which is comparatively non-drying, lubricating in character, and not destructive of the fiber. A recess *f* is shown in the disk in which a reserve supply of the moistening material, preferably in solid form, as paraffin *p*, is placed, where it will be melted and absorbed by the wood after the cap has been placed on the bottle during the usual process of steaming the bottle. The disk of compressible material may be of other substance than of wood, as good sealing can be effected when the disk is of ground-cork sheeting, as linoleum, or thick pasteboard or rubber. The other disk K within the metal cap is of a suitable metal—as zinc, aluminium, tin, or alloy—which will not be attacked or dissolved or noticeably taint the contents of the bottle. It is of such thickness, usually three to five thousandths of an inch, and of such tenacity that when the requisite pressure is applied for affixing the cap and the metal disk is clamped between the wood disk and the mouth of the bottle the metal disk will properly fold and adjust itself to the mouth of the bottle without tearing and effect a proper sealing contact. The metal disk is of greater diameter when flat than the inside of the vertical part of the flange of the cap, and its entire periphery is in contact with the flange, so that when the cap is placed on the bottle and the disk somewhat corrugated in conforming to the mouth of the bottle and driven within the vertical part of the flange of the cap the periphery of the disk will still be in contact with the flange, thereby sealing the disk of wood in the cap so that no part of the wood will be exposed to changing air, and drying of the wood will thereby be prevented. The disk also prevents the ingress and egress of water, which would otherwise gain access in the process of steaming, for water by reason of the readiness with which it evaporates and the difficulty of retaining it in uniform amount in the fibers of the wood is less suited than other substances above named as a moistening material.

In the form shown in Fig. 2 a tenacious metal disk K′, which in this form need not be of an insoluble material, is faced with foil F, preferably of pure tin or tin alloy, which is not attacked or dissolved by the contents of the bottle. In this structure the tenacious metal disk is of importance, as it supports the foil and relieves the foil of such strain as would cause it to tear if it were in direct contact with the wood. The unqualified expression "a tenacious metal disk" is therefore to be understood, broadly, as inclusive both of the structure of Fig. 1, wherein the property of tenacity is present in a metal suited for direct sealing contact and exposure to the bottle contents, and in the structure of Fig. 2, wherein the tenacious metal disk is composite and consists of two metals, one of which imparts to the disk the requisite tenacity and the other of which has properties which render it suitable for direct sealing contact.

As compared with bottle-caps in which well-selected cork is the sealing medium a somewhat greater pressure is requisite in capping bottles with caps constructed in accordance with this invention to make the aluminium disk conform to the irregularities of the bottle-mouth and be brought into proper sealing contact therewith. However, this pressure is no greater than is required in effecting the locking engagement of the cap and bottle with the form of lock herein set forth by the method of applying pressure to the bead for the double purpose of first effecting the sealing engagement and then turning the bead inwardly to carry it and the locking-wire into engagement with the lip of the bottle, as set forth in my application for Letters Patent of the United States, Serial No. 223,088, filed September 2, 1904, for a machine for applying caps to bottles. The strain of this pressure is transmitted through the flange, which is a separate element from the sealing-disk, of greater tensile strength by reason of the employment of a metal either of greater unit strength or greater thickness, or both.

The tin cap and the interposed disk of compressible material have a further function in shielding the sealing-disk when on the bottle.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a tenacious metal disk contained within the cap, and a disk of compressible material interposed between the cap and metal disk, the whole organized to effect a sealing contact between the metal contained in the cap and the mouth of the bottle.

2. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a tenacious metal disk contained within the cap, a facing of foil for the disk, and a disk of compressible material interposed between the cap and tenacious metal disk, the whole organized to effect a sealing contact between the foil and the mouth of the bottle.

3. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a metal disk the periphery of which is in contact with the flange of the cap, a disk of absorbent compressible material and a suitable moistening material, the disk of the compressible material and moistening material being wholly inclosed by the cap and metal disk.

4. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a metal disk contained within the cap, a disk of absorbent compressible material provided with a recess and a suitable moistening material in solid form but fusible at a low temperature contained within the recess, the disk of compressible material and moistening material being wholly inclosed by the cap and metal disk.

5. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a tenacious metal disk contained within the cap, and a disk of compressible material interposed between the cap and metal disk, the whole organized to effect a sealing contact between the metal contained in the cap and the mouth of the bottle.

6. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a tenacious metal disk contained within the cap, a facing of foil for the disk, and a disk of compressible material interposed between the cap and tenacious metal disk, the whole organized to effect a sealing contact between the foil and the mouth of the bottle.

7. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a metal disk the periphery of which is in contact with the flange of the cap, a disk of absorbent compressible material and a suitable moistening material, the disk of the compressible material and moistening material being wholly inclosed by the cap and metal disk.

8. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a metal disk contained within the cap, a disk of absorbent compressible material provided with a recess and a suitable moistening material in solid form but fusible at a low temperature contained within the recess, the disk of compressible material and moistening material being wholly inclosed by the cap and metal disk.

Signed by me at New York, N. Y., the 21st day of March, 1905.

FREDERICK RECHT.

Witnesses:

SAMUEL W. BALCH,

CHARLES H. O. JACKSON.

BLANK

PAGE

1668
1946

DEFENDANT'S EXHIBIT A A A A A

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper, Contents and Drawing, in the matter of the

Pending Application of

Albin H. Warth.

Filed November 7, 1930, Serial Number 494,201,

Renewed February 1, 1934,

for

Improvement in Bottle Cap Spot Material.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this first day of March, in the year of our Lord one thousand nine hundred and thirty-five and of the Independence of the United States of America the one hundred and fifty-ninth.

ATTEST:

Chief of Division.

Commissioner of Patents.

23—6208
U.S. GOVERNMENT PRINTING OFFICE: 1934

1668
1946

1947 1669

NUMBER (Series of 1925)
494201

PATENT NO.
1930 DATED

DIV. ~~50~~ 50

(EX'R'S BOOK) 1-24-11 / 75-1 / 12 — 25-11 / 4

Name ALBIN H. WARTH

Asso. to Crown Cork & Seal Company, Inc. of Boston Mass. a corp of New York

1927

BALTIMORE
MARYLAND

BOTTLE CAP SPOT MATERIAL

Filed Jan 4 19

ORIGINAL		RENEWED	
APPLICATION FILED COMPLETE	NOV 7, 1930		FEB 1 1934
Petition, Specification, Oath, First Fee $30, sheets Drawings 1 sheet 6/14/31	NOV 7, 1930	$30	FEB 1 1934
Examined and passed for Issue	Feb 2, 1933	Renewed and passed for Issue	OCT 5 - 1934, 19
Notice of Allowance	Feb 2, 1933	Notice of Allowance	OCT 5 - 1934, 19
Final Fee	, 19	Final Fee	, 19

PARTS OF APPLICATION

Division of App. No. 1599743

Attorney CUSHMAN, BRYANT & DARBY, LOAN & TRUST BLDG CITY.

Associate Attorney

No. of Claims Allowed 50 / 15 Print Claim 2 in O. G. Class 91-69

Title as Allowed Bottle Cap Spot Material

9061

1670 1948

[redacted] 38219 B - Check 25.00

Rec'd U.S. Patent Office

Application for U. S. Letters Patent 494201

CUSHMAN, BRYANT & DARBY
ATTORNEYS AT LAW
COUNSELORS IN PATENT CAUSES
WASHINGTON LOAN & TRUST BLDG.
[redacted] F STREET, NORTHWEST
WASHINGTON, D. C.

MAIL DIVISION NOV - 7 1950 U.S. PATENT OFFICE

Petition

To the Honorable Commissioner of Patents
Washington, D. C., U. S. A.

Your petitioner Albin H. Warth

a citizen of the United States,

residing at Baltimore in the [redacted]

State of Maryland and whose post-office address is

c/o Crown Cork & Seal Co., Inc., Baltimore, Maryland

prays that Letters Patent may be granted to

him for the improvement in

Bottle Cap Spot Material

set forth in the annexed specification.

And he hereby appoints CUSHMAN, BRYANT & DARBY, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, Jr., of the City of Washington, District of Columbia, whose register number is 7196, his attorneys, with full power of substitution and revocation, to prosecute this application, to make amendments therein, to sign his name to the drawings, to receive the Letters Patent, and to transact all business in the Patent Office connected therewith.

Albin H. Warth

(Write first name in full.)

Specification

To All Whom It May Concern

Be It Known, that I, Albin H. Warth

a citizen of the United States,

residing at Baltimore in the [redacted]

State of Maryland have invented new and useful

improvements in

Bottle Cap Spot Material

of which the following is a specification:

1671
1949

This invention relates to a method of producing closures of the type in which a sealing disk has a facing.

This application is a division of my co-pending application, Serial No. 159,745, filed January 7, 1927.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks are given a facing, e. g. tin foil, or aluminum foil. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as "spot center crowns".

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the tin foil spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste

or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packages liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method, the spots are secured by an underlying and separately formed and deposited tissue of gutta percha or coated paer. In crowns so made, like objections are met with.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view, the invention consists in the method which will be first described and then more particularly pointed out in the claim.

According to the method of the present invention, the strip material, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice, the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is insoluble in cold water. While various materials may be used, I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil, such as soya bean or china-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less.

While the coating may be applied to the material

in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the material, it is dried. While this may be effected by air drying at room temperatures, it is more rapidly accomplished at a temperature of about 300° F maintained for about three minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting.

In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork.

The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example,

by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. ~~On the coating may be softened by moistening slightly with a solvent, such as benzol.~~ In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use, owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk, it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

1675

1953

I CLAIM:-

As a new article of manufacture, laminated material in sheet or strip form for the spotting of cushion disks or caps, and comprising a layer of waterproof adhesive which is hard at room temperature but fuses upon the application of heat, and material to which said adhesive is bonded to form a coating, said material being impervious to moisture and acid-resistant, thereby providing laminated sheet or strip material from which laminated spots or facings may be punched for assembly with cap disks and adapted to be united with the disks by the mere application of heat and pressure.

1676

1954

In testimony whereof I *have hereunto set* MY *hand*

Albin H. Warth

(Write first name in full.)

Oath

City
County of Baltimore } ss.

State of Maryland

I, Albin H. Warth,

the above-named petitioner, being duly sworn, depose and say that I am a *citizen of the United States, and resident of* Baltimore, Maryland

and that I *verily believe* myself *to be the original, first, and* sole *inventor of the improvement in* Bottle Cap Spot Material

described and claimed in the annexed specification; that I *do not know and do not believe that the same was ever known or used before* MY *invention or discovery thereof; or patented or described in any printed publication in any country before* MY *invention or discovery thereof or more than two years prior to this application; or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by* ME *or* MY *legal representatives or assigns more than twelve months prior to this application, and that no application for patent on said improvement has been filed by* ME *or* MY *representatives or assigns in any foreign country.*

Albin H. Warth

(Write first name in full.)

Sworn to and subscribed before me, this 6th *day of* November *19*30

[SEAL.]

Florence M. Beckratz
(Notary sign here.) Notary Public.

MY COMMISSION EXPIRES MAY 4, 1931.

Acknowledgment should be made before a Notary Public, WHO MUST AFFIX HIS SEAL. If Notary has no seal, a certificate of the Judge or Clerk of the Court showing that the Notary is qualified, must be attached. If the oath is taken before a Justice of the Peace, a certificate of the Judge or Clerk of the Court showing that such Justice is qualified, must be attached.



1677

1955

Rev. 56 Room 311

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 2

All communications regarding this application should give the serial number, date of filing, and name of the applicant

RSC/jmk

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

April 27, 1931

Applicant: Albin H.Warth

Cushman, Bryant & Darby,
Loan and Trust Bldg.,
Washington, D.C.

Ser. No. 494,201
Filed Nov. 7, 1930
For Bottle Cap Spot Material

MAILED
APR 27 1931

This case has been examined.

The following references are made of record:

Koch	1,238,156	Aug.28, 1917	154-45.5-Bottle
Marsa	1,603,786	Oct.19, 1926	"
Kronstein	799,065	Sept. 1905	134-28
(British)Heys	3,572	Feb.13, 1912	"

The claim is rejected as obviously fully met by the above cited patents to Koch and Marsa.

The Kronstein and Hys patents are cited to show that the applicant's particular type of adhesive is old.

This case appears devoid of invention and should be prepared for a final action.

RSC

F. Porter
Examiner.

1679
1957

APPLICATION DIV. U.S. PATENT OFFICE
JAN 16 31

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,
BOTTLE CAP SPOT MATERIAL,
Filed November 7, 1930,
Serial No. 494,201. Div. 56.

* *

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

Please enter the accompanying drawing.

IN THE SPECIFICATION

Page 2

Line 5 insert the following: -This type of closure

a' is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Line 10 before the period insert --, these materials

a² or other materials of protective character being suitable to provide a non-absorbent, gas impervious, and acid resistant facing.

Page 3

Line 8 after the period insert the following: -For

a³ example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not

only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shelf itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about

the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency

of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

Page 4

Line 3 after the period insert the following: - So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine.

Line 19 before "In" insert the following: - Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strip of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the

a5

stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing disks.

Page 4

Line 27 after the period insert the following:

--In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

a6

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Line 30 after the paragraph insert the following:

--Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

a7

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross-sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature, so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be ad-

hesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 25, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

a7

Page 5

Line 10 cancel the sentence reading "Or the coating may be soi, ened etc.,"and ending in line 11.

Last line add the following:

a8

--A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

IN THE CLAIM

Line 3 before "layer" cancel "a" and substitute --an exposed continuous--

Line 5 before"material" insert --sheet like facing--

Line 6 before "coating" insert --continuous--

Line 7 cancel "and acid resistant".

REMARKS

This application has been very carefully reviewed, and has

been amended in order that the invention may be set forth in the manner described in the parent application which has now matured into patent 1,788,260.

This application covers the article of manufacture which is employed in the method defined in the claims of the patent.

The amendments entered in the specification have been offered in the light of interviews kindly granted the applicant by the Examiner, and it is believed that, in view of these amendments, the Examiner will now appreciate more clearly the real problem which applicant has solved and the definite advance he has made over the prior art.

The Examiner's attention is particularly directed to the additional matter inserted in the specification. This matter simply explains the relation of the present invention to the prior art and defines the characteristics of the material involved in the use of the method which make the method a very valuable advance over former practices.

The applicant does not claim to be the first to have used metallic foil; this material is simply one of numerous materials which have been used for years in the spotting or facing of caps. These cap facings or spots are employed in order to afford a non-absorbent, gas impervious and acid resistant surfacing for the cushion material which is used in crown caps. As the Examiner will, of course, appreciate, other materials have been used, such as paper suitably finished to impart these characteristics to the same.

At the time the applicant made the present invention, it was customary to "spot" by feeding the acid and gas resistant material in strip form, and also the adhesive tissue in strip form, and to simultaneously punch from the strips discs of the acid resistant material and of the adhesive tissue. Another practice was to deposit on the cushion material of the cap the cement or liquid adhesive, and then to apply the disc of acid resistant

material. The use of this liquid made the process slow in view of the difficulties in applying the glue or paste. Moreover, the use of a separate strip of adhesive in tissue form was objectionable for various reasons, which are now fully explained in the specification. Briefly stated, these objections were:

FIRST - it was difficult to handle the adhesive in tissue form and breakage of the same made necessary the stopping of the cap machine.

SECOND - stretching or distortion of the tissue adhesive made it difficult to obtain exact registry of the tissue disc and acid-resistant material disc when the two were applied to a cap.

THIRD - due to drag in the cutting dies, it was not always possible to obtain exactly corresponding sizes of tissue and material discs, with the result that the entire bottom surface of the material disc was not always backed with adhesive and the material disc was not always united to the cushion throughout its entire edge.

FOURTH - the necessary thickness of the adhesive tissue resulted in expression of the same from beneath the facing when pressure is applied to the spot.

FIFTH - the handling of two strips of material retarded operation of the cap assembling machine.

SIXTH - the necessary thickness of the adhesive tissue made it difficult to obtain a firm bonding of the tissue and facing material throughout the face of the disc.

SEVENTH - after the punching operation the separate discs moved out of registration and resulted in a large proportion of defective caps.

These and other objections to the previously used processes have been overcome by the applicant. His invention involved, as a primary concept, the elimination of the use of separate strips

in the cap assembly operation. As a secondary concept, it involved the provision of a unitary multi-layer strip with the layers bonded, one surface of this strip being a waterproof adhesive which will soften under the application of heat and pressure, and the other surface being acid resistant, gas impervious and non-absorbent. It has frequently been pointed out by the Courts that invention often consists in discovering what is the difficulty with existing structures or methods, and that this constitutes invention, although the means for overcoming these objections are comparatively simple. For example, Judge Hough said in the case of Kurtz et al., v. Belle Hat Lining Co. Inc., (C. C. A. 2nd Cir.) 280 Fed. 277 (at 281):

> "Patentability has often been found 'in discovering what is the difficulty with an existing structure' and correcting the same, even though 'the means' are old and their mere 'adaptation to the new purposes involves no patentable novelty.' Miehle, etc., Co. v. Whitlock, 223 Fed. 647, 650, 139 C. C. A. 201. Hindsight, or wisdom after the fact, has always been looked upon with disfavor; e. g. Faries Co. v. Brown, 121 Fed. 547, 550, 57 C. C. A. 609."

The same Circuit Court of Appeals in the earlier case of Miehle Printing Press & Mfg. Co. v. Whitlock Printing Press Co., 223 F. R. 647, said:

> "Patentable novelty is sometimes found in discovering what is the difficulty with an existing structure and what change in its elements will correct the difficulty, even though the means for introducing that element into the combination are old and their adaptation to the new apparatus involves no patentable novelty."

In these decisions the Courts simply followed other decisions to the same effect, such as Patents Selling v. Mann 204 Fed. 99; General Electric v. Hartman 187 Fed. 151; General Electric Co. v. Sangamo Electric Company (C. C. A. 7th) 174 Fed. 246. In the last case, the Court pointed out that there are two steps involved in an inventive act, namely (a) discerning

in existing machines or processes some deficiency, and (b) pointing out the means to overcome the same. The Court said this in the following language:

> "Invention, in the nature of improvements, is the double mental act of discerning in existing machines, processes, or articles, some deficiency and pointing out the means of overcoming it."

The applicant's invention, from the standpoint of conception, consisted in three steps. First, he perceived that the former practices of using (a) paste or glue, or (b) a separate strip of adhesive tissue, were cumbersome and objectionable. He saw the objections and set out to overcome them. The second step in his invention was to supply the medium and method by which these objections might be eliminated. In connection with the second step, he supplied a material of laminated character having (a) one exposed surface which is acid resistant and gas impervious, and (b) another exposed surface with a thin coating of waterproof adhesive which softens under the application of heat, but is normally hard, so that the material may be conveniently handled.

The applicant's development has numerous advantages, including the following:

> 1. The cost of product of spot crowns is very materially decreased; in fact this invention alone was the main factor in reducing the cost of production of spot crowns sufficiently to make possible commercial production.
>
> 2. There is but a single strip to handle, instead of the two separate strips of the former method.
>
> 3. There is no need of applying paste or glue to the cushion material of each cap.
>
> 4. The simultaneous cutting of the adhesive and material discs from a single strip insures that the adhesive is coextensive in area with the material with the result that there is no possibility of gas or moisture entering between the spot material and the cushion layer around the edges of the spot.

5. The thinness of the adhesive layer avoids expression of the adhesive when pressure is applied to the spot.

6. There is no tendency for distortion or stretching of the adhesive layer relative to the material strip.

7. There is no possibility of breakage of a fragile adhesive tissue which results in stoppage of the machine.

8. It is possible to inspect the facing material as it is fed into the assembly machine to insure that the entire surface is coated with adhesive, which cannot be done when the separate strips are fed or when paste or glue is first applied to the cushion material. In other words, imperfectly faced caps are virtually eliminated. There is absolute registration of the edges of the material disc and adhesive disc which is difficult to obtain in the manufacture from separate strips.

9. The discs in united form may be fed into the cap in absolute registry and assembled by the cutting punch, due to the bonded relation of the two layers.

10. The heat and pressure necessary for uniting the facing to the cap may be applied substantially simultaneously with the punching and assembly operations without waiting for inspection, since there is no danger of the adhesive and material discs moving out of registry with one another; this permits an operation in which the punch used to cut the discs may also be employed to apply the pressure.

These and other advantages of applicant's invention make the same, from a practical standpoint, a radical advance in the art. The Examiner will appreciate this from the fact that this method has been adopted by the Crown Cork & Seal Company, in lieu of formerly used articles. This Company, as the Examiner is probably aware, is the largest manufacturer in the world of crown caps.

As a further feature of the invention, the applicant proceeded to provide a method involving the use of this article. However, the article is the basis for the method. Protection having been granted for the method, it is thought that the same argument which supports the patentability of the method, applies with much greater force to the article, without which the method

could not have been provided.

THE PRIOR ART

The prior art cited by the Examiner illustrates quite well prior practices.

Koch (1,238,156) describes a cap having an external facing of foil and several underlayers which are, respectively, vulcanized rubber, tough paper and gutta percha. But there is nothing in this patent which suggests the idea of providing strip material having an external facing, such as foil or paper and another surface adhesively united thereto in the form of a water resistant adhesive which will fuse upon the mere application of heat. While the patent illustrates a final article having a foil facing and which includes, among its several underlayers, a gutta percha adhesive, it does not, in any way, suggest the material or article of manufacture which applicant is claiming.

Marsa (1,603,786) shows tin plate 10 from which caps are stamped. This tin plate has applied thereto, at intervals, spots 11 which are merely a cementing medium in the cap after it has been stamped from the cushion layer 16. Consequently, this patent does not suggest strip material having a continuous coating of heat fusible adhesive. The material disclosed is tin plate, which is the body of the cap. Consequently, it is not a cap liner, and is not adapted to serve as a cap liner or for the spotting of cushion discs. The other references are not at all pertinent, and have not been advanced by the Examiner as pertinent to this invention.

The claim has been amended to make clear that the material, such as foil or paper, is of sheet like character, and that the adhesive forms a continuous coating thereon. Moreover, the claim specifies that the materials are of the character adapted for the spotting of cushion discs, and obviously the tin plate disclosed by Marsa could not be used for the purpose of forming a liner

or a cushion disc upon a cap.

Allowance of the case is thought to be in order and is respectfully requested.

Respectfully,

Attorneys.

JJD:U

1694

1972

56 Room 311

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 5

RSC/jmk

ase find below a communication from the EXAMINER in
arge of this application.

Thomas E. Robertson
Commissioner of Patents.

December 17, 1931

Applicant: Albin H. Warth

Ser. No. 494,201
Filed Nov. 7, 1930
For Bottle Cap Spot Material

Cushman, Bryant & Darby,
Loan and Trust Bldg.,
Washington, D.C.

MAILED
DEC 17 1931

Responsive to amendment filed June 16, 1931.

The following additional references are made of record:

Beer	1,023,713	April 16, 1912	154-Metal Foil
Stanley	961,550	June 14, 1910	154-Metal Foil

Th claim is again rejected on Marsa who clearly shows a metal foil coated with a fusible adhesive. While Marsa's coating is not continuous, it would be obvious to make it so.

The claimis further rejected on Stanley or Beer both of whom show metal foil coated with a thermoplastic adhesive such as resin, gum, etc. While these references do not propose to make the same use of their article as the applicant, the mere functional statement as to the use does not render an article patentable. Furthermore, it is clear that a patentee is entitled to new uses for his article.

This case should be prepared for a final action.

RSC

Examiner.

1695

1973

U.S. PATENT OFFICE APPLICATION FILED JUN 17 32

U. S. PATENT OFFICE ☆ JUN 17 1932 ☆ DIVISION 56

Sub Pow. Atty #6

Applicant: Albin H. Warth

Invention: BOTTLE CAP SPOT MATERIAL

Filed: November 7, 1930

Ser. No. 494,201

HON. COMMISSIONER OF PATENTS,

SIR:

We hereby substitute as attorneys in the above named case, Messrs. Cushman, Bryant, Darby & Cushman, a firm composed of Arlon V. Cushman, Arthur L. Bryant, John J. Darby and William M. Cushman (Reg. No. 7196), American Security Building, Washington, D. C.

Respectfully,

Cushman, Bryant & Darby

June 16 1932.

1896

1974

APPLICATION DIV. U.S. PATENT OFFICE JUN 17 32

U.S. PATENT OFFICE JUN 17 1932 DIVISION 56

IN THE UNITED STATES PATENT OFFICE

7/B

Albin H. Warth,
BOTTLE CAP SPOT MATERIAL,
Filed November 7, 1930,
Serial No. 494,201. Division 56.

- - -

June 16, 1932.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

We hereby authorize and request entry of the following amendment in the above entitled application:

IN THE SPECIFICATION:

Page 4:

Next to the last line, after the period insert the following:

B'

-- An adhesive of this character provides a highly flexible adhesive layer continuously united with the facing material. Moreover, such an adhesive is highly resistant to the acids and alkalies ordinarily present in liquids which are to be capped. This is highly important in the manufacture of spot caps, since the liquids attack the adhesive around the edge of the spot. An adhesive of this character, which is not only waterproof, but resistant to acids and alkalies as well, maintains a firm adherent union of the facing or spot material with the cork disc. Due to its flexible character, it will not crack, and, therefore, it constitutes a flexible backing for the spot material. --

1697

1975

IN THE CLAIM:

Line 1, before "laminated" insert -highly flexible-.

Line 3, after "waterproof" insert -- , flexible and acid-resistant-.

Same line (3), after "adhesive" insert --adapted to adhere to a cork disc and-.

C.B.D-C Line 3, before comma insert -- with [illegible] less weight than the disk diameter

REMARKS

The Examiner is respectfully requested to reconsider this application, since the claim has been limited in a manner which definitely confines its scope to the cap art. The claim as previously worded was rejected upon the Marsa patent, and also upon the patents to Stanley and Beer.

Marsa does not disclose flexible spotting material. Marsa shows merely sheet metal having spots of adhesive thereon. This metal is used for the formation of caps which are stamped from the metal at the points where the adhesive is applied. The disclosure in the Marsa patent is totally foreign to applicant's invention, which relates to spotting material intended to be used for producing the well known center spot type of cap. This type of cap is now a recognized species of crown cap and is universally employed for capping ginger ales and other highly acidulated beverages.

The patents to Stanley and Beer do disclose a flexible material having an adhesive thereon. But the Examiner will admit, of course, that the Stanley and Beer materials have no relation to the capping art. If applicant were claiming merely a flexible material having an adhesive thereon, these patents would, perhaps, be somewhat pertinent, and we appreciate their citation by the Examiner in order that the record may be complete.

But applicant is claiming a new article of manufacture which consists of water-resistant facing material having a

backing layer of an adhesive which is of a specific type, namely (a) flexible, (b) waterproof, and (c) acid-resistant, These are three (3) essential characteristics of applicant's article, and they are not present in the Stanley and Beer devices.

Neither of the patentees had any conception of material which would be useful in the capping art. Neither suggests an adhesive which could be practicably employed for uniting a spot to a cork disc.

Stanley contains no suggestion of a chemically resistant adhesive which could be employed for uniting either paper or tin foil to a cork disc in a bottle cap. Stanley does not mention any specific type of adhesive, although he does provide a water jacket, and, therefore, it is probable that the adhesive is a glue solution of high viscosity. Such an adhesive would be suitable for adhering metal letters to leather bags, but it would be useless in the cap manufacturing art.

Beer uses a simple water soluble gum or glue. Beer cannot use anything which would be effective in the cap art, since his final object is to strip metal foil from a surface which is purposely made non-adherent.

Such a type of adhesive would be of no use whatsoever in applying spot material to cork discs intended to be used for sealing acidulous beverages.

It is apparent, therefore, that neither Stanley nor Beer suggests the use of a flexible acid-resistant adhesive. Obviously, neither of these patentees ever thought of acid resistance. They were concerned merely with providing monograms for leather goods.

Applicant provides, however, a new article of manufacture consisting of highly flexible facing layer, of foil for example,

and a continuous adhesive layer which is equally flexible, and is also both waterproof and acid-resistant. A further characteristic of the adhesive layer is that it fuses upon application of heat and will become hard at room temperature.

It is submitted that this application discloses a radically new conception. Applicant is the first to provide spotting material in strip form having a continuous adhesive backing of the character described united thereto. The practical character and importance to the industry of applicant's conception and disclosure is apparent from the record.

Admittedly, the changes required to adapt Stanley or Beer to the capping art are small. But the ultimate fact is that neither Stanley's nor Beer's material as constituted, is suitable and a conception radically different from either of the patentees was necessary in order to perceive the advantage of applicant's idea and to complete applicant's conception. As the Courts have repeatedly said, developments of this character are not to be tested in the light of the changes made in the prior art. The changes required in prior art devices are ordinarily very simple. But the question of invention is to be determined rather by the idea which dictated the changes and the simplicity of the changes is immaterial. As Judge Learned Hand recently said in the case of H. C. White Co. v. Morton E. Converse & Son Co., involving a child's "Kiddie Car", 20 Fed. (2d) 311 (at 313) (C.C.A. 2d Cir.):

> "Again and again, ad nauseam, courts have been fond of saying that it is the obvious when discovered and put to use that most often proves invention. In such matters we look rather to history than our own powers of divination, if history is at hand. Hirsch v. Gould, 6 Fed. (2d) 793 (C.C.A.2). * * * We see in this an invention just because, be-

BLANK

PAGE

BLANK

PAGE

> ing so simple, it had not occurred to any one before. The fact that the changes were so slight is quite irrelevant, so long as they were essential to the purpose, as they were."

Again, Judge Hough considered the same question in Kurtz et al v. Belle Hat Lining Co., Inc., (C.C.A. 2d Cir.) 290 Fed. 277 (at 281):

> "Patentability has often been found 'in discovering what is the difficulty with an existing structure' and correcting the same, even though 'the means' are old and their mere 'adaptation to the new purposes involves no patentable novelty.' Mishle, etc., Co. v. Whitlock, 223 Fed. 647, 650, 139 C. C. A. 201. Hindsight, or wisdom after the fact, has always been looked upon with disfavor; e. g., Faries Co. v. Brown, 121 Fed. 547, 550, 57 C.C.A.609."

The claim now presented does distinguish from the prior art and defines the precise characteristics of applicant's article which make it suitable for the capping art to which it relates. The Beer and Stanley devices are not intended for the capping art and are not suitable for the purposes for which applicant's invention was intended. It is submitted, therefore, that the distinctions between applicant's invention and the prior art, although slight, should be viewed in relation to the fact that they make applicant's invention a highly useful and meritorious one, whereas the prior art contributes nothing practical or useful for applicant's purposes.

Very respectfully,

Attorneys for Applicant.

5/7/35

JJD/W

1701
1979

Div. 50 Room 4701 Ave I:3B Paper No. 8

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

MAILED

All communications regarding this application should give the date number, date of filing, and name of the applicant

DEC 9 1932

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

Cushman, Bryant, Darby & Cushman,
Loan & Trust Bldg.,
Washington, D.C.

Applicant: A. H. Warth

Ser. No. 494,201
Filed Nov. 7, 1930
For Bottle Cap Spot Material

In view of interference No. 60,878, action on the merits of the claim of the instant application is suspended, in accordance with the practice approved in ex parte McCormick, 113 O.G. 2508; C.D. 1904, 575.

When the above interference has been terminated, applicant should call this case up for action.

O. L. Beake

Examiner. SA 34

1702
1980

APPLICATION FILED FEB -1 1933 U.S. PATENT OFFICE

For Affidavit

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP SPOT MATERIAL,

Filed November 7, 1930,

Serial No. 494,201. Div. 56.

* * *

January 31, 1933

Hon. Commissioner of Patents.

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 3

Line 25 cancel "gum" and substitute --resin--.

Line 30 after the period insert --Another example of a suitable gum type of adhesive is gutta percha or a gutta percha containing compound which have characteristics similar to the composition previously described. Among such characteristics are substantially non-tackiness or adherence at room temperature a high degree of flexibility, insolubility in and imperviousness to moisture or water, acid resistance and heat fusibility, i. e., adapted to be brought to a tacky state by the mere application of heat and without the use of moisture. Such an adhesive is specified in my copending application, Serial No. 414,614, filed December 17, 1929.--

Page 4

Line 11 change "thirty" to --three--.

IN THE CLAIM

Cancel the claim and subetitute:

1793
1981

--2. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

3. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive containing a rosin, damar gum and a vegetable oil and being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.--

REMARKS

The interference, No. 60,878 having terminated favorably to the applicant, it is requested that this application be considered.

The claims have been redrafted along the lines discussed with the Examiner whose suggestions have been adopted and are very much appreciated.

As will be understood, this application is copending with application Serial No. 414,614, and the two applications will be issued simultaneously since neither is prior art as against the other, both inventions having been made on or about the same date. In addition to the prior art of record, applicant's attorneys have considered with the Examiner the following patents:

880,969, Butler	March	3, 1908
1,690,161, Evans	Nov.	6, 1928
739,932, Seiffert	Sept.	29, 1903.

While the patent to Seiffert (739,932) does disclose broadly metal foil having an adhesive coating, there is nothing in this patent which is suggestive of the combination recited in the claims. The first of the two new claims presented is generic for the purpose of covering either the specific adhesive disclosed or one of the same general type, e. g., gutta percha. The second claim is restricted to the specific adhesive originally disclosed.

While it may be broadly old to use gutta percha in the cap art, applicant is the first to disclose a "spotting" material comprising metallic foil as one layer and an adherent coating of a flexible adhesive which is impervious to moisture, acid resistant and fusible upon the mere application of heat, i. e., without the use of a liquid. As the Examiner appreciates, the provision of this combination enables the production at a very high rate of speed of "center spot" caps in which the spots are accurately centered due to the absence of moisture from the adhesive. In other words, the use of heat alone in the punching and pressure applying operations effects the union of the heat softened or heat fused adhesive with the cork. There is no reference of record which suggests the production, as an article of manufacture, of either metallic foil or of paper of the character useful for the spotting of caps, either

provided with an adherent continuous coating of highly flexible adhesive which is impervious to moisture, acid resistant and fusible upon the mere application of heat. Applicant's discovery that this combination of elements facilitates and makes possible the provision of accurately centered spots overcame difficulties which prior to applicant's invention had made difficult the production of paper spot or of metallic spot caps on a commercial scale. While the invention is a simple one, it is, nevertheless, an extremely important contribution to the cap industry. This application, together with the companion application, Serial No. 414,614 disclose the invention in its entirety, the present case being limited to a species, to wit: adhesively coated foil, and the other application being limited to another species, namely, adhesively coated paper.

Although the Examiner has available patents which show the use of gutta percha as an adhesive, there is nothing suggestive in either of these patents of combining this adhesive with strip foil. While the Seiffert patent teaches the coating of metal foil broadly, this does not anticipate the invention. Applicant does not claim to be the first to apply adhesive to metallic foil even in the bottle cap art. It is the combination of the foil with the exposed continuous coating of adhesive of the type specified in the claims which is new with the applicant and which constitutes his contribution to the art. The claims recite the characteristics of the type, and since the combination is new, there is no basis for an aggregation of the individual or separate patents to anticipate them.

Allowance of this case is thought to be in order and is solicited.

Respectfully,

JJD:U

Attorneys.

1706
1984

APPLICATION DIV. FEB -1 33 U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP SPOT MATERIAL,

Filed November 7, 1930,

Serial No. 494,201.

Div. 56.

* * *

DISTRICT OF COLUMBIA:SS.

Albin H. Warth, whose application for Letters Patent for Improvements in Bottle Cap Spot Material, was filed November 7, 1930, Serial No. 494,201, being duly sworn, deposes and says that he has read the attached amendment and that the subject matter thereof was part of his invention, was invented before he filed his original application, above identified, for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, or in public use or on sale in this country for more than two years before the date of his application, and that the same has not been abandoned.

Albin H. Warth

Subscribed and sworn to before me this 31st day of January, 1933.

Theresa Buckhardt
Notary Public D.C

SEAL.

1707
1985

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

Div. 50
K

Serial No. 494,201

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

February Two, 1933

Albin H. Werth, Assor.,

Your APPLICATION for a patent for an IMPROVEMENT in Bottle Cap Spot Material

filed Nov. 7, 1930 has been examined and ALLOWED with 2 claims.

The final fee, THIRTY DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $30 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $30 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

Cushman, Bryant & Darby &
Cushman,
Loan & Trust Bldg.,
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

1708
1986

10/7

U. S PATENT OFFICE

FEB 3 - 1933

ISSUE DIVISION

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP SPOT MATERIAL,

Filed November 7, 1930,

Serial No. 494,201. Division 50.

AMENDMENT UNDER RULE 78.

February 2, 1933.

Hon. Commissioner of Patents,

Washington, D. C.

Sir:-

We hereby request that the following amendment be entered under Rule 78, without withdrawing the application from issue:

IN THE CLAIMS:

Cancel the first of the two (2) claims appearing herein, said claim being numbered 2 before allowance.

REMARKS

The first of the two (2) allowed claims has been cancelled, for the reason that it has been transferred to applicant's copending case Serial No. 414,614, filed December 17, 1929.

Gl # 1,894,782
91/68K (A118)

ENTRY RECOMMENDED
UNDER RULE 78.

Very respectfully,

EXAMINER

Attorneys for Applicant.

APPROVED

JJD:W

ACTING COMMISSIONER OF PATENTS

1709
1987

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Feb. 4, 1933

Petition under **RULE 78:**

Application of

Serial No.

Invention:

This petition is referred to Examiner in charge of Division 53 in accordance with Order No. 2698; Order No. 2801, 308 O. G., 447, and Notice of August 11, 1922.

Thomas E. Robertson
Commissioner.

1710
1988

Div. 50 Room 4701

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 11

All communications regarding this application should give the serial number, date of filing, and name of the applicant

February 6, 1933

Cushman, Bryant, Darby & Cushman,
Loan & Trust Bldg.,
Washington, D. C.

Applicant: Albin H. Warth

Ser. No. 494,201
Filed Nov. 7, 1930
For Bottle Cap Spot Material

The amendment proposed has been entered under Rule 78.

Thomas E. Robertson
Commissioner of Patents.

M--- ers

1711
1989

Renewal + Amend E
#12

MAIL DIVISION
FEB - 1 34
U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP
SPOT MATERIAL,

Filed November 7, 1930,

Serial No. 494,801. Div. 56.

Allowed February 2, 1933.

* *

February 1, 1934

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 5

At the end of the page, after the amendatory matter now inserted add the following:

--A cap made from a material including an adhesive of the general character described has advantages which are not obtainable with the use of a gutta percha as an adhesive for uniting the center spot to the cushion disc. It has been found in the capping of beverages which are subjected to pasteurization that gutta percha tends to soften in the presence of wet or moist heat above 150°F., and the same applies to gutta percha containing compounds. A composition of the character described resists softening, not only through the temperature range of ordinary pasteurizing temperatures up to 150°F., but also through the range of forced pasteurizing temperatures which vary from 165°F. to 170°F. As a matter of fact, some liquids, such as vinegar, are pasteurized

through a range of 165 to 185°F., and I have found that, in my improved cap, the spot remains firmly united to the cushion disc up to 185°F. Furthermore, a gutta percha or gutta percha compound when used for uniting a center spot to a cushion disc, although having many advantages rendering it highly valuable in crown cap manufacture, has the tendency to swell in the presence of moisture. This swelling tendency becomes extremely pronounced under high pressures, such as are created within a bottle containing carbonated beverages, particularly when the latter are subjected to pasteurizing temperatures, e. g., in the pasteurizing of beer. The swelling of the adhesive uniting the center spot and the cushion disc separates and loosens the center spot and reduces the efficiency of the seal. In my improved cap, the adhesive layer or film uniting the center spot to the disc does not swell in the presence of moisture, and hence the spot does not separate from the cushion disc.

These characteristics are of vital importance in the manufacture of "center spot" caps; since the diameter of the spot or facing and of the adhesive layer uniting the same to the cushion disc is less than the cushion disc diameter, the capped liquid and the moist heat produced, e. g., during pasteurization, attack the adhesive layer around the periphery or edge of the center spot. Hence, the problem of maintaining an adherent union of the "center spot" with the cushion disc is not encountered in constructions wherein the facing is coextensive with and completely covers the cushion layer.--

---

IN THE CLAIMS

Add the following claim:

1713
1991

--4. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible, heat fusible and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.--

REMARKS

The Examiner is, of course, aware of applicant's issued Patent No. 1,899,782, granted February 28, 1933, and which is hereby made of record. Said issued patent contains the generic claims to material of the type covered by the present application.

The new claim presented distinguishes from the issued patent for the reasons clearly set forth in the amendatory matter inserted in the present specification by this amendment.

The use of gutta percha or gutta percha compounds in this art is unquestionably a valuable contribution, particularly in connection with the "center spotting" of caps. That has been already recognized by the Patent Office and the tremendous commercial success of applicant's assignee in exploiting center spot caps in which the center spot facing is united by gutta percha adhesive to the cushion disc constitutes a corresponding recognition by the trade.

However, in the bottling of some liquids, it has been found advantageous, particularly for pasteurizing purposes, to use an

adhesive of the character disclosed in the present application; in other words, an adhesive which will not swell when subjected to moisture and heat above 150°F. Gutta percha tends to swell and softens under heat above 150°F.

The Examiner's attention is called to the distinguishing characteristics of the present invention which are set forth in the amendment to the specification, and these are embodied in the single new claim presented. The claim obviously distinguishes from the prior art and since it is not readable upon the disclosure of the issued patent (1,899,782) it is thought that the case may be allowed forthwith.

Respectfully,

Lothman Bryant Clarke & Lothman

Attorneys.

JJD:U

1993

FEB-134 136007 A ~Check --- 30.00

MAIL DIVISION
FEB - 1 34
U.S. PATENT OFFICE

REC'D

PETITION FOR RENEWAL

TO THE COMMISSIONER OF PATENTS:

Your Petitioner, Albin H. Warth, a citizen of the United States, and resident of Baltimore, State of Maryland, whose post office address is C/o Crown Cork & Seal Company, Inc., represents that on the 7th day of November, 1930, he filed an application for Letters Patent for an improvement in Bottle Cap Spot Material, Serial No. 494,201, which application was allowed February 2, 1933, but that he failed to make payment of the final fee within the time allowed by law. He now makes renewed application for Letters Patent for said invention, and prays that the original specification, oath and drawings, may be used as part of this application.

ALBIN H. WARTH

By [illegible]
Attorneys.

Washington, D. C.,
February 1, 1934.

1994 1716

RENEWAL 1494201

Print of drawing as renewed.

Fig. 1.



Fig. 2.

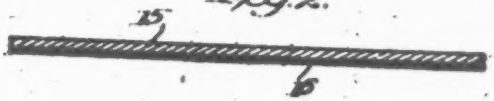


Fig. 3.

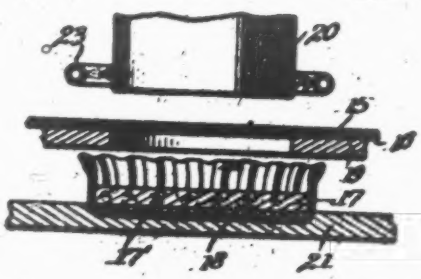


Fig. 4.

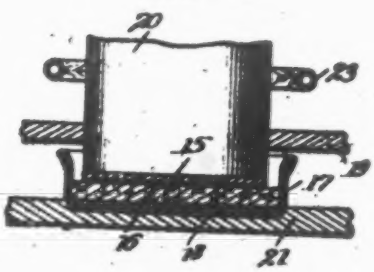


Fig. 5.

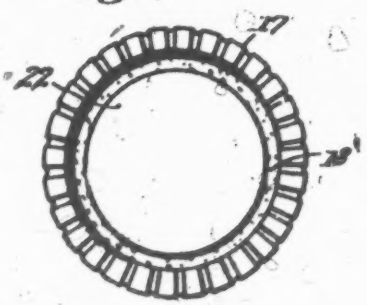
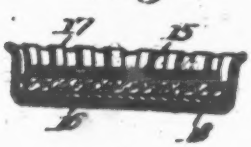


Fig. 6.



Inventor
Albin H. Warth.
By Cushman Bryant & Hardy
Attorneys

2/2/32

This is an additional sheet of drawing and must be subjected to the chief draftsman before ac-

Div. 50 Room 4701 Page No. 13

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications respecting this application should give the serial no. name, date of filing, and name of the applicant

MAILED
FEB 20 1934

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents.

Cushman, Bryant, Darby & Cushman,
Loan & Trust Bldg.,
Washington, D. C.

Applicant: Albin H. Warth

Ser. No. 494,201
Filed Nov. 7, 1930 Ren. 2-1-34
For Bottle Cap Spot Material

Claim 1 (original Claim 3) is directed to probably allowable subject matter.

New Claim 4 is rejected as being broader than the disclosure in view of the fact that applicant has described only one adhesive that possesses the properties recited. It is well established that the disclosure of only one substance does not give the right to lay claim generically to a whole class of substances. As is apparent, considerable experimentation would be required to determine just what compounds possess the attributes recited. In other words, the claim is so broad as to amount to nothing more than a mere hint for further experimentation. Line 5, "an" should be changed to -a continuous-

O. H. Blake
Examiner.

hv

1996

1414

U.S. PATENT APPLICATION DIV. OFFICE
AUG 20 34

U.S. PATENT OFFICE
AUG 21 1934
DIVISION 56

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP
SPOT MATERIAL,

Filed November 7, 1930,

Serial No. 494,201,

Allowed February 2, 1933.

U. S. PATENT OFFICE
FILED
AUG 21 1934
DIVISION 50

Div. 56.
August 20, 1934.

* * *

Hon. Commissioner of Patents,

Washington, D. C.

Sir:-

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE CLAIMS:-

Claim 4:
Line 3, strike out "an" and insert --a continuous--.
Same line, after "flexible" insert --, heat fusible--.
Add the following claims:-

--53. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing a resinous material adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

1719

1997

4. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing an adhesive resin adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

5. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing a mixture of resins adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.--

---

REMARKS

Reconsideration is respectfully asked of the rejection of claim 4. Applicant is a pioneer in the art of spot material and the present application has an effective date of 1927. Consequently, applicant is entitled to a very liberal interpretation of his invention and the scope thereof should not be restricted for purely formal reasons. -2-

The claim of record calls for strip material for the spotting of cushion discs or caps in the form of a continuous layer of metal foil coated with a continuous layer of (1) waterproof; (2) flexible; (3) heat fusible; and (4) acid resistant adhesive. In other words, the adhesive must conform to all of these qualifications and the claim is therefore limited specifically thereby and excludes various compositions or adhesives which do not have these properties.

In addition, the claim recites that the adhesive is (5) adherent to the metal foil and (6) adherent to a cork disc, both limitations restricting the field from which equivalent adhesives will be selected and further defining the adhesive.

The claim further recites (7) that the adhesive is substantially non-tacky at room temperature but (8) fusible upon the mere application of heat and (9) substantially non-softening at temperatures up to and including 170°F. These are more complete qualifications surrounding the adhesive and restrict the class of adhesives upon which applicant's discovery is based.

Furthermore, the claim recites (10) that the adhesive is substantially non-swelling and (11) none-contracting under conditions of moisture variation.

We feel that perhaps the Examiner has misunderstood the import of the claim and we hope that by listing the qualifications which are in effect limitations, that he will recede from his position. Applicant is attempting to cover broadly a class of adhesives which as a pioneer he is entitled to cover and the claim has been definitely limited to recite the qualifications and properties of the adhesive. Such being the case, it is felt that applicant is entitled to the claim since it is definitely limited to his discovery and excludes a large number of inoperative and undesirable adhesives which do not possess each and every one of the characteristics or limitations of the claim.

Claim 5 is similar to claim 4 but is even more restricted

by reciting that the adhesive contains a resinous material. Certainly this claim is patentable.

Claim 6 differs from claims 4 and 5 in reciting that the adhesive contains an adhesive resin. This claim is therefore even more definite and for the reasons above stated is clearly patentable.

Claim 7 recites that the adhesive contains a mixture of resins and it is thought that this claim will be found patentable.

In asking for reconsidération, we have in mind the position which this case occupies as a pioneer invention, and of course there is no prior art of record which even closely approaches the structure defined in the claims.

In view of all of these circumstances and to the further fact that the claims are definitely limited to applicant's construction of a strip spotting material, we ask the Examiner to carefully reconsider his action and to pass the case to issue.

Respectfully,

Attorneys for applicant.

MCL:I

1722

2000

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

Div. 58 . 181
K

Serial No. 494,801

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON October Five, 1934

Albin H. Warth, Assor.,

Your APPLICATION for a patent for an IMPROVEMENT in Bottle Cap Spot Material
Renewed Feb. 1, 1934
Filed Nov. 7, 1930 has been examined and ALLOWED with 5 claims.

The FINAL fee, THIRTY DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $30 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $30 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Commissioner of Patents.

Cushman, Bryant, Darby & Cushman,
Loan & Trust Bldg.,
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

1723

2001

=1:10/5/24 Baker 15

APPLICATION DIV. U.S. PATENT OFFICE OCT 27 34

U. S. PATENT OFFICE OCT 29 1934 ISSUE DIVISION 5-0

SUPPLEMENTAL OATH

Albin H. Warth,
BOTTLE CAP SPOT MATERIAL,
Filed Nov. 7, 1930,
Serial No. 494,201,
Allowed October 5, 1934.

U. S. PATENT OFFICE FILED OCT 29 1934 DIVISION

CITY OF BALTIMORE)
STATE OF MARYLAND) ss.

Albin H. Warth, whose application for Letters Patent for Improvements in Bottle Cap Spot Material, was filed Nov. 7, 1930, Serial No. 494,201, and allowed October 5, 1934, being duly sworn, deposes and says that the subject matter of the allowed claims hereinafter appearing was part of his invention, was invented before he filed his original application, above identified for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, or in public use or on sale in this country for more than two years before the date of his application, and that the same has not been abandoned.

1. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive containing a rosin, damar gum and a vegetable oil and being substantially non-tacky at room temperature but fusible upon the application of

heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

2. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible, heat fusible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

3. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing a resinous material adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

4. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing an adhesive resin adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

5. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing a mixture of resins adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substan-

1724

tially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

Albin H. Wastie

Subscribed and sworn to before me, this 18th day of October, 1934.

Florence McKeever
Notary Public.

COMMISSION EXPIRES MAY 8, 1935

SEAL.

1726

2004

EDGAR J. CLARKSON
PATENTS AND PATENT CAUSES
1426 - G STREET N. W.
607 ALBEE BUILDING
WASHINGTON, D. C.,

494201—16

RECEIVED
FEB 16 1935
U. S. PATENT OFFICE

Feb. 14, 1935.

Hon. Commissioner of Patents
Washington, D. C.

Sir:

Kindly furnish as soon as possible a certified copy of the file wrapper and contents of application Serial No. 494,201, to Warth, filed Nov. 7, 1930.

In Warth's Patent 1,967,195 the following paragraph is noted on page 1:

> "This application is a division of my copending application Ser. No. 494,201 filed Nov. 7, 1930 and the latter is a division of my application Ser. No. 159,743, filed Jan. 7th, 1927, now patent 1,788,260, granted Jan. 6, 1931.".

Inclosed find $ to cover the cost of the above.

Respectfully,

Hauff and Warland
c/o E.J. Clarkson
Box. 350

Hauff & Warland

OK
R.F.W.
Feb 20/35
In this letter Feb 20/35

1727

2005

(Copy)

LB

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

February 18, 1935

Cushman, Darby & Cushman,
American Security Bldg.,
Washington, D. C.

Gentlemen:

Request has been made by Hauff and Warland for permission to obtain a copy of the application of Warth, No. 494,201.

The request is based upon the statement appearing in Warth's patent No. 1,967,195 that the application on which that patent issued is a division of application 494,201.

Action on this request will be withheld for one week from this date to give you the opportunity to state the objections, if any you have, to the request being approved.

Very truly yours,

R. F. Whitehead

Law Examiner

2C

1728

2006

ARLOS V CUSHMAN
JOHN J DARBY
WILLIAM N CUSHMAN

CARROLL J McGUIRE
MAX O. LOUIS
GORHAM P. FREER
JAMES W. DENT
C WILLARD HAYES
ROGGER D GESSFORD
HARRY C. RILEY
KERN E FOLKERS
GEORGE W. PORTER
JOHN W. MALLEY
ROBERT T. SANNONS

CUSHMAN, DARBY & CUSHMAN
ATTORNEYS AT LAW AND COUNSELORS IN PATENT CAUSES
AMERICAN SECURITY BUILDING
WASHINGTON, D. C.

PATENTS
TRADE-MARKS & COPYRIGHT

CABLE
"MYCUSHMAN" WASHINGTON

TELEPHONES
NATIONAL 3460-3461-3462

DOCKET DIVISION
FEB 23 1935
U.S. PATENT OFFICE

February
Twenty one
1935

Hon. Commissioner of Patents,
Washington, D. C.

Attention of Mr. H. P. Whitehead.

Subject: Application of Albin H. Earth
Serial No. 494,201.

Sir:

Acknowledging your letter of the 18th instant, we have no objection to granting Messrs. Hauff & Harland access to the above entitled application.

Respectfully,

JJD:KB

1729

2007

421

1930

CONTENTS:

1. Application ... ✓	..... papers.	26.	
2. Petition	APR 27 1931	27.	
3. Letter	MAY 1 1931	28.	
4. Amend A	June 16-1931	29.	
5. Petition	DEC 17 1931	30.	
6. Sub Pow Atty	June 17-1932	31.	
7. Amend B	June 17-1932	32.	
8. Letter	DEC. 9. 1932	33.	
9. Amend C + Aff	Feb 1-1933	34.	
10. Amended D	Feb 3 1933	35.	
11. Letter	FEB 6 · 1933	36.	
12. Reinstate Amend B	Feb 1-1934	37.	
13. Rejection	FEB 20 1934	38.	
14. Amend E	Aug 20 1934	39.	
15. Oath	Oct 27. 1934	40.	
16. Petition for Interim	Feb 6/35	41.	
17.		42.	
18.		43.	
19.		44.	

RENEWAL

Fig. 1.



Fig. 2.

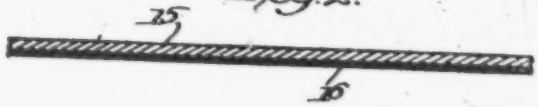


Fig. 3.

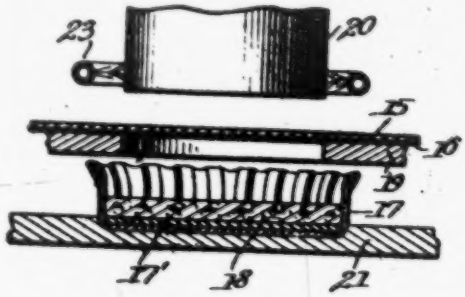


Fig. 4.

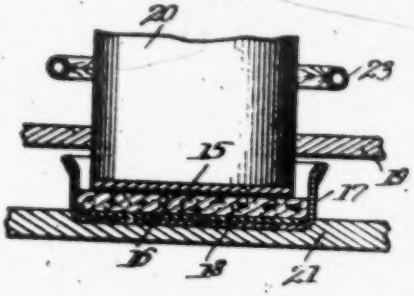


Fig. 5.

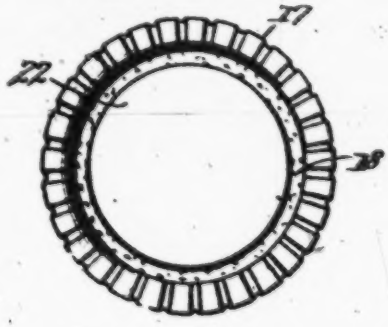
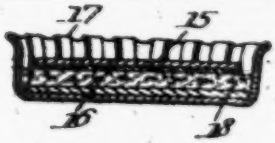


Fig. 6.



Inventor
Albin H. Warth.
By Cushman Bryant & Clark
Attorneys

2008. 1780
91/65
D50
252-1.
6
1/6
2/2/33
OCT 5 1934
213
There is an additional sheet of drawing and must be submitted to the Chief Draftsman before issue.

BLANK

PAGE

1731

2009

DEFENDANT'S EXHIBIT B B B B B

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper, Contents and Drawing, in the matter of the

Abandoned Application of

Albin H. Warth,

Filed August 21, 1926, Serial Number 130,631,

for

Improvement in Bottle Caps.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this twenty-third day of January, in the year of our Lord one thousand nine hundred and thirty-five and of the Independence of the United States of America the one hundred and fifty-ninth.

ATTEST:

Chief of Division.

Commissioner of Patents.

11—6000
U. S. GOVERNMENT PRINTING OFFICE: 1934

1732

2010

NUMBER (Series of 1925) 130631

PATENT NO.

1926 DATED

DIV. 40

(EX'R'S BOOK) 217-191-R

Name ALBIN H. WARTH

Assignee The Crown Cork & Seal Company of Baltimore City a Corp of Maryland Inc., of New York, N. Y. assignee of New York.

of BALTIMORE

State of MARYLAND

Invention BOTTLE CAPS

Filed ....., 19.....

Division of App., No. .....

ORIGINAL

APPLICATION FILED COMPLETE AUG 21, 1926

DATE OF APPLICATION FILED

Petition, Specification, Oath, First Fee $30, 1 sheets Drawings, AUG 21, 1926

Examined and passed for Issue ....., 192.....

..... Bur. Div.

Notice of Allowance ....., 192.....

By Commissioner.

Final Fee ....., 192.....

RENEWED

Renewed and passed for Issue ....., 192.....

..... Bur. Div.

Notice of Allowance ....., 192.....

By Commissioner.

Final Fee ....., 192.....

Attorney PHILIPP, SAWYER, RICE & KENNEDY 220 BROADWAY NEW YORK N Y

Associate Attorney .....

No. of Claims Allowed ..... Printed Claims ..... In O. G. Class ..... S.V.

Title as Allowed .....

1733

2011

LAW OFFICES

PHILIPP, SAWYER, RICE & KENNEDY,

ST. PAUL BUILDING, 220 BROADWAY.

RECEIVED AUG 21 1926 PATENT OFFICE

New York City, August 20, 1926.

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We send herewith petition, specification, oath, and 1 sheet of drawings in an application of Albin H. Warth for patent on improvement in Bottle Caps

also check for $30. in payment of first Government fee.

Respectfully,

PHILIPP, SAWYER, RICE & KENNEDY,

Attorneys.

1734

2012

1/ /

MAIL ROOM AUG 21 1926 U.S. PATENT OFFICE

PETITION.

The Honorable Commissioner of Patents:

Your petitioner, Albin H. Warth a citizen of the United States, residing at Baltimore, ~~in the County~~ and State of Maryland (whose Post-Office address is c/o Crown Cork & Seal Co., 1511 Guilford Avenue, Baltimore, Md.) prays that Letters Patent of the United States be granted to him for the invention in BOTTLE CAPS

set forth in the annexed specification, and he hereby appoints Cleon J. Sawyer, James Q. Rice, James J. Kennedy and Philip B. Philipp (of the firm of Philipp, Sawyer, Rice & Kennedy, St. Paul Building, 220 Broadway, New York, P. O. Box 164, City Hall Station), his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Albin H. Warth

SPECIFICATION.

To all whom it may concern:

Be it known that I, Albin H. Warth a citizen of the United States, residing at Baltimore, ~~in the County~~ of ~~and~~ State of Maryland have invented certain new and useful improvements in

BOTTLE CAPS

fully described and represented in the following specification and the accompanying drawings forming a part of the same.

This invention relates to bottle caps.

Closures of the well known crown cork type comprise a metal shell having a corrugated skirt and a resilient sealing disk, usually of cork. When a bottle is to be sealed, a closure is applied with heavy pressure, e.g. 500-600 lbs., to effect a tight seal between the disk and the bottle, and the skirt is crimped around a locking shoulder on the bottle to secure the cap in place.

For use in packaging various materials, particularly certain mineral waters, cork disks have been provided with a facing of tin foil to protect the material from the cork or the cork from the material. This facing is ordinarily of a diameter less than that of the cork disk, the diameter being such that the tin foil partly but not entirely overlaps the rim of the bottle mouth. Such crowns are known in the trade as spot center crowns. An objection to these tin foil spot crowns is that the metal is apt to corrode under the action of certain liquids, such as alkalinated and acidulated liquids. Moreover, these crowns are relatively expensive.

It is an object of the present invention to provide a faced bottle cap suitable for sealing various materials, including alkalinated and acidulated liquids. It is a further object of the invention to provide a closure of the kind referred to that is capable of withstanding usual sealing pressures: that is capable of effecting a uniform sealing, with leakage, for high carbonated pressures; and that is relatively inexpensive.

With these general objects, and others not specifically mentioned, in view, the invention consists in the article which will first be described in connection with the accompanying drawing and then more particularly pointed out.

In the drawing:

Figure 1 is a sectional view, somewhat exaggerated for purposes of illustration, of a bottle cap embodying the invention; and,

Figure 2 is a similar view showing the cap applied to a bottle.

Referring to the drawing, the closure shown as an example comprises a metal shell 11 having the usual corrugated skirt 12. Within the skirt is a cork sealing disk 13, which may be of either natural cork or composition cork. The cork disk is faced with a so-called spot center 14, that is, a facing that is smaller in diameter than the cork disk but partly overlaps the bottle mouth when the closure is applied to a bottle. As appears in Fig. 2, when the closure is applied to a bottle 15, the spot center overlaps the bottle mouth sufficiently to cover the mouth and prevent any contact between the bottle contents and the cork disk. At the same time, there is some sealing contact between the cork disk and the bottle.

The spot center 14 of the present invention is non-metallic. It is characterized by toughness sufficient to avoid splitting at its edge under the sealing pressure exerted in applying the closure, usually about 600 lbs. It is further characterized by elasticity sufficient to make and mantain a seal without leakage for high carbonation pressures, e.g. 60-100 lbs. A suitable material is a tough and flexible paper coated with varnish, pitch or the like, for example, a varnished express paper. Such papers are made wholly or largely from a sulfite pulp as distinguished from kraft and other papers made from a sulfate pulp. Kraft papers, however, may be used if sufficiently tough and elastic.

While the spot center may be formed and assembled in various ways, this may be conveniently accomplished by

cutting disks of the proper diameter from varnished paper stock and in the best embodiments of the invention the stock will be between .005" and .015" in thickness. This paper disk is then secured to the cork disk by means of a backing 16 of some elastic and adhesive tissue, e.g. gutta percha, by means of a heated plunger or the like. By so applying heat and pressure to the assembled cork and paper disks the gutta percha or like backing is rendered adhesive and the paper spot is firmly cemented to the cork. In this connection, it is noted that apparatus for cutting and assembling spot centers is known in the art.

The resulting closure has a spot center that is practically tasteless, colorless and that does not corrode under the action of alkalinated and acidulated liquids, as in the case of tin foil and other metallic facings. The spot center is sufficiently tough to withstand sealing pressures without splitting or breaking and sufficiently flexible and elastic to maintain a seal for carbonation pressures as high as 100 lbs. per square inch. The gutta percha tissue being elastic tends to aid in the sealing effect and being insoluble in water tends to prevent the loosening of the spot in long contact with bottled contents.

WHAT IS CLAIMED IS:

872,273
1,145,024

1. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a non-metallic spot facing for the sealing disk.

2. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a paper spot facing for the sealing disk.

3. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a spot facing for the sealing disk made of thin express paper characterized by toughness and elasticity.

4. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a paper spot facing for the sealing disk secured to the latter by an elastic adhesive tissue.

1739

2017

In testimony whereof, I have hereunto set my hand.

Albin H. Warth

OATH

State of Maryland
City
~~County~~ of Baltimore } ss.:

Albin H. Warth the above-named petitioner, being duly sworn, deposes and says that he is a citizen of the United States, and resident of Baltimore, ~~County~~ ~~xxx~~, State of Maryland; that he verily believes himself to be the original, first, and sole inventor of the improvements in BOTTLE CAPS

described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvements has been filed by him or his legal representatives or assigns in any country foreign to the United States.

Subscribed and sworn to before me this 10th day of August, 1926. } Albin H. Warth

Florence Mildred Ketcatte
Notary Public
My commission expires
May 2, 1927

1740

2018

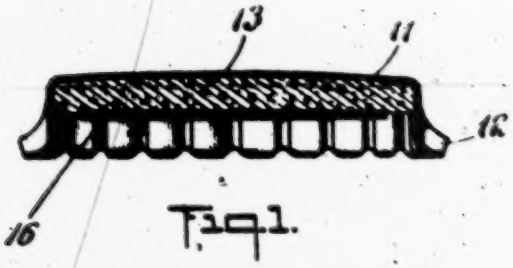


Fig 1.

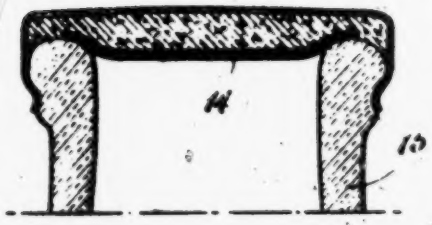


Fig 2.

INVENTOR
Albert H. Wasick
Phelps Lawyer Rice & Kenyon
ATTORNEYS

1741

2019

Ser. No. 40 Group 227

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 8

Please find below a communication from the EXAMINER in charge of this application.

Nov. 30, 1926.

MAILED

NOV 30 1926

Commissioner of Patents.

Philipp, Sawyer, Rice & Kennedy,
220 Broadway,
New York, N.Y.

Applicant: Albin H. Barth

Ser. No. 130,631
Filed Aug. 21, 1926.
For Bottle Caps.

References made of record:

(24)	Scott-	872,153	Nov. 26, 1907	215-39
(69)	Alberti-	1,199,026	Sep. 19, 1916	215-39
(54)	Gaston-	1,123,806	Dec. 29, 1914	215-39

On allowance of any claim or upon appeal revision as to form may be required (Order 2749) May 27, 1922.

Claims 1, 2, 3, and 4 are rejected for lack of novelty over Scott.

Examiner.

2020 1742

MAIL ROOM MAY 19 1927 U.S. PATENT OFFICE

U.S. PATENT OFFICE MAY 20 1927 DIV. 40 PAPER No 3

IN THE UNITED STATES PATENT OFFICE

Letter

In re application of
Albin H. Warth,
BOTTLE CAPS,
Serial No. 130,631,
Filed August 21, 1926.

Div. 40 - Room 267

New York, May 18, 1927.

Hon. Commissioner of Patents,
Washington, D. C.

S i r :

In response to Official action of Nov. 30, 1926, reconsideration is requested.

The claims stand rejected for lack of novelty over Scott 872,153. It is submitted that there is nothing in Scott to suggest the closure defined. Scott merely mentions the use of a pasteboard liner in reconditioning caps. But applicant is not claiming such a liner broadly.

Claim 1 calls for a non-metallic spot facing. The facing of Scott is not a spot facing and with Scott's full facing of pasteboard it is practically impossible to effect a properly tight seal. Claim 2 is along the same lines. Claim 3 specifies a spot facing having certain characteristics not remotely suggested by Scott. Claim 4 calls for a specific cementing tissue not suggested in Scott.

An allowance is requested.

Respectfully submitted,

Albin H. Warth

By Philipp Sampson & Kenyon

Attorneys.

2021 1743

Div. 40 Room 267 Mills/GW

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 4

All communications regarding this application should give the serial number, date of filing, and name of the applicant.

Please find below a communication from the EXAMINER in charge of this application.

MAILED

June 23, 1927.

Thomas E. Robertson
Commissioner of Patents.

JUN 28 1927

Philipp, Sawyer, Rice & Kennedy,
220 Broadway,
New York, N.Y.

Applicant: Albin H. Warth,
Ser. No. 130,651,
Filed Aug. 21, 1926.
For BOTTLE CAPS.

Responsive to communication of May 19, 1927.

Claims 1, 2, 3 and 4 are rejected on Scott in view of Alberti, both of record. It would be merely mechanical skill to make the facing spot and to secure it to the sealing disk by an elastic adhesive tissue as this idea is seen at 15, Figure 4, of Alberti.

M.F.

Acting Examiner M. F. Knotts

- - "

THIS ACTION MUST BE RESPONDED TO WITHIN SIX MONTHS. R

2022 1744

DIVISION 37, Paper No. For Div 40

DEC 10 19

MAIL ROOM DEC 9 1927 U.S. PATENT OFFICE

U. S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

U. S. PATENT OFFICE

DEC 13 1927

In re application of
Albin H. Warth,
BOTTLE CAPS,
Serial No. 130,631,
Filed Aug. 21, 1926.

Div. 40 - Room 267 DIV. 40 PAPER No. 51

Letter

PATENT OFFICE DEC 10 1927 DIVISION ART

New York, December 8, 1927.

Hon. Commissioner of Patents,
Washington, D. C.

S i r :

In response to Official action of June 23, 1927, reconsideration is requested.

Applicant has devised a cap having certain definite advantages as set forth in the specification. No such cap is suggested by the references.

Scott merely mentions the use of a pasteboard bushing in temporarily re-sealing partly emptied bottles. Such a thing could not suggest a paper spot, even though metal spots were known. It is a makeshift and not part of the cap and would be next to valueless under ordinary capping and carbonated pressures. Moreover, spot facings present certain problems that could not be solved by any suggestion in the Scott patent. Claim 3 is obviously not met by anything in the references and it is submitted that applicant is entitled to the broader claims in view of the fact that to find an anticipation Scott would have to be unwarrantably modified.

An allowance is requested.

Respectfully submitted,
Albin H. Warth
By Pinkney Sawyer Rice & Kennedy

Attorneys.

2023 1745

Unit 40 Room 267 Mail Bills/3

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 6

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents

Jan. 19, 1928

Philipp, Sawyer, Rice & Kennedy
220 Broadway
New York, N.Y.

Applicant: Albin E. Warth
Ser. No. 130,681
Filed Aug. 21, 1926
For Bottle Caps

MAILED
JAN 19 1928

In response to letter filed Dec. 9, 1927.

Claims 1, 2, 3, and 4 are rejected on Scott in view of Alberts, both of record, for reasons of record.

Applicant's argument has been considered but it is still not thought that the claims patentably distinguish over the references as applied.

This action is final

Examiner.

THIS ACTION MUST BE RESPONDED TO WITHIN SIX MONTHS.

1746

2024

40 U. S. PATENT OFFICE

JUL 18 1928

DIV. 40 PAPER No. 7

15 Rec'd

JUL 17 1928 C. C. U. S. PAT. OFFICE

IN THE UNITED STATES PATENT OFFICE

Appeal to Board

In re application of	:	
Albin H. Warth,	:	Before the
Serial No. 130631,	:	Board of Appeals
Filed August 21, 1926,	:	
BOTTLE CAPS	:	

New York, July 17, 1928

To the Commissioner of Patents,

SIR:

I hereby appeal to the Board of Appeals from the decison of the principal examiner rendered January 19, 1928 rejecting claims 1, 2, 3 and 4 in this application.

The specific grounds of error alleged are as follows:

1. The Examiner erred in rejecting claims 1, 2, 3 and 4 and each of them on the references and grounds stated.

2. The Examiner erred in not allowing each of claims 1, 2, 3 and 4.

An oral hearing is requested.

Respectfully submitted,

Albin H. Warth

By Julian Sayre & Rice

Attorneys.

105-

BOARD OF APPEALS JUL 18 1928 U. S. PATENT OFFICE

1747

2025

M/D

Paper No.6

Department of Commerce
U. S. Patent Office
Washington

MAILED
JUL 28 1928

In re: Application of
Albin H.Warth
Serial No.130[illegible]
Filed August 21,1926
Bottle Caps.

July 28,1928

Appeal to Board of Appeals

Examiner's Statement

This is an appeal on the following claims:

1. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a non-metallic spot facing for the sealing disk.
2. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a paper spot facing for the sealing disk.
3. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a spot facing for the sealing disk made of thin express paper characterised by toughness and elasticity.
4. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a paper spot facing for the sealing disk secured to the latter by an elastic adhesive tissue.

The references are:

(24)	Scott	872,188	Nov.26,1907	(215-39) and
(69)	Alberti	1,199,086	Sept.19,1915	(215-39)

The invention claimed consists of a bottle cap of the

crown cork type, comprising a metal shell, a cork sealing disk, and a paper spot facing secured to the disk by an elastic adhesive tissue.

Scott shows a metal cap of the crown cork type with a cork sealing disk therein covered with a small wafer or disk of pasteboard 10. See lines 104 and 105. Alberti shows a metal spot facing 15, Figure 3, stuck to the cork by an interposed cementing medium, albumen. See Page 2, lines 18 to 49.

The examiner holds that it would be merely mechanical skill to make the paper facing of Scott spot and to secure it to the sealing disk by an elastic adhesive tissue as this idea is disclosed at 15 and 16 Figure 4 of Alberti.

Respectfully,

M.f.

58/8

1749

2027

Appeal No. 105 Paper No 9

Address only
The Commissioner of Patents
Washington, D. C.

201 a

Notice of Hearing
Paper No.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

August 14 , 1928.

Sir:

The case of Albin H. Warth

Serial)
~~Interference~~) No. 130,631 , will be heard by the Board of Appeals on the 1st day of May , 1929.

The hearings will commence at ONE O'CLOCK and as soon as the argument in one case is concluded the succeeding case will be taken up.

If any party, or his attorney, shall not appear when the case is called, his right to an oral hearing will be regarded as waived.

The time allowed for arguments is as follows:

Ex parte cases, thirty minutes;
Inter partes appeals: interlocutory, thirty minutes each side; final hearing, one hour each side.

By special leave, obtained before the argument is commenced, the time may be extended.

The appellant shall have the right to open and conclude in inter partes cases, and in such cases a full and fair opening must be made.

Briefs in inter partes appeals must be filed in accordance with the provisions of Rules 144 and 163.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

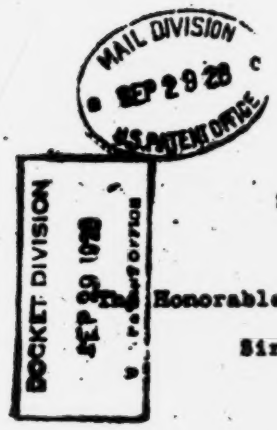
To

Messrs. Philipp, Sawyer, Rice & Kennedy, Attys.,
To 220 Broadway,
New York, N. Y.

1750

2028

#10 Dec



SUBSTITUTE POWER OF ATTORNEY

The Honorable Commissioner of Patents,

Sir:

The undersigned hereby revokes any and all powers of Attorney heretofore given in the matter of the application filed by Albin H. Warth

August 21 1926

for Improvements in BOTTLE CAPS

Serial Number 130,631 and hereby appoints Glenn J. Sawyer, James J. Kennedy, Philip B. Philipp and Harris M. Humasen (of the firm of Philipp, Sawyer, Rice & Kennedy, St. Paul Building, 220 Broadway, New York, N. Y., P. O. Box 164, City Hall Station,) his Attorneys, jointly and severally, with full power of substitution and revocation, to prosecute said application, to make alterations and amendments therein, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Signed at Baltimore, Md. this 27th day of September A. D. 1928.

CROWN CORK & SEAL COMPANY, INC.

By _____ Vice President

Assignee of entire title

Attest:

_____

Assistant Secretary

1751

2029

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

#11

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

February 6, 1929.

Sir:

The case of Albin H. Warth

Serial No. 130,631

Your appeal in the case above referred to has been set for hearing at 9:30 in the morning instead of 1:00 o'clock p. m. on the date previously set.

Thomas E. Robertson
Commissioner of Patents.

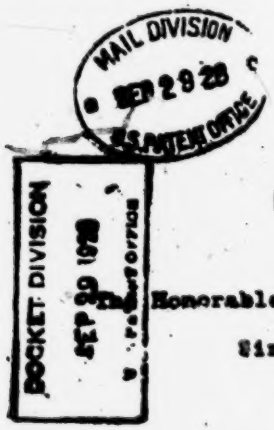
To

Messrs. Philipp, Sawyer, Rice and Kennedy,
220 Broadway,
New York, N. Y.

1750

2028

#10 Ost



SUBSTITUTE POWER OF ATTORNEY

To the Honorable Commissioner of Patents,

Sir:

The undersigned hereby revokes any and all powers of Attorney heretofore given in the matter of the application filed by Albin H. Warth

August 21 1926

for Improvements in BOTTLE CAPS

Serial Number 130,631 and hereby appoints Cleon J. Sawyer, James J. Kennedy, Philip B. Philipp and Harris H. Humason (of the firm of Philipp, Sawyer, Rice & Kennedy, St. Paul Building, 220 Broadway, New York, N. Y., P. O. Box 164, City Hall Station,) his Attorneys, jointly and severally, with full power of substitution and revocation, to prosecute said application, to make alterations and amendments therein, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Signed at Baltimore, Md. this 27th day of September A. D. 1928.

CROWN CORK & SEAL COMPANY, INC.

By [signature] Vice President
Assignee of entire title

Attest:

[signature]
Assistant Secretary

1751

2029

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

#11

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

February 6, 1929.

Sir:

The case of Albin H. Warth

Serial No. 130,631

Your appeal in the case above referred to has been set for hearing at 9:30 in the morning instead of 1:00 o'clock p. m. on the date previously set.

Thomas E. Robertson
Commissioner of Patents.

To

Messrs. Philipp, Sawyer, Rice and Kennedy,
220 Broadway,
New York, N. Y.

1752

2030

Appeal No. 105 Paper No. 12

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE.

Brief.

MAY 17 1927
U.S. PATENT OFFICE

APPLICATION OF ALBIN H. WARTH,

BOTTLE CAPS,

SERIAL NO. 130,631,

FILED AUGUST 21, 1926.

(BEFORE THE BOARD OF APPEALS)

B R I E F FOR A P P L I C A N T.

This is an appeal from a final rejection by the Principal Examiner of all the claims presented.

These claims are as follows:

1. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a non-metallic spot facing for the sealing disk.

2. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a paper spot facing for the sealing disk.

3. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a spot facing for the sealing disk made of thin express paper characterized by toughness and elasticity.

4. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a paper spot facing for the sealing disk secured to the latter by an elastic adhesive tissue.

The references are:

Alberti, 1,199,026

Scott, 872,153.

APPLICANT'S INVENTION.

The invention relates to closures of the well-known crown cork type. These closures ordinarily comprise a metal shell having a corrugated skirt which is crimped over a shoulder on the bottle, and a disk of cork or the like which makes sealing contact with the bottle mouth. Such a closure is shown in the drawing, in which 11 represents the metal shell with skirt 12, and 13 represents the cork disk.

While the crown cork, through its general use with mineral waters, sodas, drugs, etc., has come to be taken more or less for granted, the bottlers' problems still continue.

For many uses it is necessary to protect the bottled liquid from contact with the cork, and it has long been the custom, in bottling mineral waters and other liquids, to cover the cork with a facing of tinfoil. But the foil is liable to corrode under the action of certain liquids, such as alkalinated and acidulated liquids. Moreover, tinfoil is relatively expensive.

Applicant's problem was, in part, to produce a closure in which the bottled contents would be protected from contact with the cork and which would obviate the objections to tinfoil. His closure has a facing that is non-metallic, i.e., paper. But he is not claiming broadly the use of paper as a protective facing.

If a facing covers the entire surface of the cork various difficulties are met with. It is difficult to secure the facing in place, the sealing function of the cork is impaired, and the facing is apt to tear. In applicant's construction, the paper facing does not cover the entire surface of the cork sealing disk. As clearly ap-

pears in Fig.2 of the drawing, the facing 14 is small enough in diameter to permit some direct sealing contact between the cork and the lip of the bottle mouth. This direct contact is desirable for a proper seal. The facing, however, does extend far enough over the bottle lip to prevent contact between the cork and the bottled liquid. Thus, the facing performs its protective function without unduly impairing the sealing function of the cork disk.

A facing of this kind is known as a "spot" facing, and spot facings per se were not new with applicant. Tinfoil spots were known, as shown in the Alberti patent and as acknowledged in the specification.

But the solution of applicant's problem was not the simple substitution of a paper spot for the known tin foil spot. Crown corks are applied under high pressures, usually about 600 lbs. As stated in the specification, applicant's spot facing is characterized by toughness sufficient to avoid splitting at its edge under these high pressures. Moreover, certain liquids have a carbonation pressure of 60 to 100 lbs. Applicant's spot facing is further characterized by elasticity sufficient to make and maintain a seal without leakage for such carbonation pressures.

Such a closure is defined in claim 3 which calls for a spot facing made of "thin express paper characterized by toughness and elasticity."

THE REFERENCES.

The Examiner's position is apparently that there was no invention in making the "paper facing of Scott" a spot facing, in view of Alberti's tinfoil spot. In reaching this position, however, the Examiner has placed an unwarranted interpretation on the disclosure of Scott. The Scott patents shows a device for re-sealing bottles. That is, a

bottle may be opened, some of its contents drawn off, and the closure again affixed. The crown cork shown is a conventional crown cork without any facing. The disk of pasteboard 10, referred to by the Examiner, is a supplemental device. The Scott specification says (page 1, lines 99 et seq.) that if the cork disk is impaired when the bottle is opened, the disk or bushing 10 is put on in resealing to compensate. If one has a trunk that is wabbly, one reinforces it with a strap. But Scott's supplemental bushing is no more a part of the crown cork as an article of commerce than the strap is a part of the trunk.

There is, we submit, nothing in Scott's patent to suggest even remotely the use of a paper spot. No one, seeking to solve the problem of providing a closure for liquids for which a tinfoil spot was not suitable, could obtain any aid from a bushing such as that of Scott which is not part of the closure and is used only as an emergency makeshift.

Still less does Scott suggest the particular closure defined by claim 3. It is true that claims 1 and 2 do not include like limitations. But it is submitted that applicant, having been the first to produce a paper spot is entitled to claim it broadly.

Claim 4 recites that the paper spot is secured to the cork disk by an elastic adhesive tissue. As pointed out in the specification, this aids in obtaining a proper seal. Alberti refers to an adhesive and mentions albumen. Of course, adhesives per se were well known in all the arts. But there is nothing in Alberti's albumen adhesive to suggest applicant's elastic adhesive.

1756

2034

To sum up, applicant was the first to produce a crown cork having a non-metallic (e.g., paper spot); this closure contributed to the art distinct advantages not present in the old tinfoil spot crown; and this closure is not disclosed or suggested in the references.

It is submitted that the Examiner should be reversed and the claims allowed.

Respectfully,

Albert N. Marks

by Marks, Sampson & Pennie,

Attorneys.

New York, May 16 1929.

1757

2035

Appeal No. 105 Paper No. 13

Decision.

Appeal No. 105

Hearing:
May 1. 1929

U.S. PATENT OFFICE
BOARD OF APPEALS
AUG 5 - 1929
MAILED

RKH

IN THE UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte Albin H. Warth.

Application for Patent filed Aug. 21, 1926, Serial No. 130,631. Bottle Caps.

Messrs. Philipp, Sawyer, Rice & Kennedy for applicant.

This is an appeal from the action of the examiner finally rejecting claims 1 to 4, inclusive.

Claim 1 is representative and is as follows:-

1. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a non-metallic spot facing for the sealing disk.

The references relied upon are:-

Scott,	872,153,	Nov. 26, 1907.
Alberti,	1,199,026,	Sept. 19, 1916.

This application relates to a bottle cap of the conventional crown cork type to which a disk of tough paper has been secured to the inner wall of the cork by elastic cement. The purpose of the paper is to prevent the contact

1758

2036

of the liquid placed in the bottle with the cork.

The patent to Alberti discloses substantially the same arrangement except that tin foil is placed on the cap instead of paper. In both appellant's structure and that of Alberti the added disk does not extend to the outer edges of the cork and this, in both cases, is to permit the cork to engage the edge of the bottle where its sealing properties are effective. The patent to Scott discloses a bottle cap of the same character having a paper disk attached to the inner face of the cork; but in this case the disk is designed to be employed only with caps which have been used and have been somewhat deformed. The paper disk is intended to afford sufficient packing so that the cap may be reused. For this reason appellant contends that it does not teach the use of a supplemental disk in the manner disclosed by appellant and Alberti. While there is some force in appellant's contention, we do not consider that it would involve invention to substitute a paper disk for the tin foil disk of Alberti, especially as paper disks have been employed as shown by Scott, even though for a different purpose and extending to the outer edges of the cork. The use of elastic cement is, in our opinion, an obvious feature in attaching the disk.

The decision of the examiner is affirmed.

Assistant Commissioner)
Examiner-in-Chief) Board of Appeals.
Examiner-in-Chief)

August 5,1929

1759

2037

Crown Cork & Seal Company, Inc.

Baltimore, Md.

Paper No. 14

NEW PROCESS CORK CO., INC.
THE CROWN CORK & SEAL CO. OF BALTIMORE CITY
CONSOLIDATED

ATTORNEY'S ROOM
AUG 6 1930
U. S. PATENT OFFICE

August 5th, 1930.

IN THE UNITED STATES PATENT OFFICE.

Name: Albin H. Warth

Serial No: 130631

Filing Date: August 26th, 1926.

Crown Cork and Seal Company, Inc., assignee of record of the entire right, title and interest in the above entitled application,

hereby gives

Messrs. Cushman, Bryant & Darby, a firm composed of Arlon V. Cushman, Arthur L. Bryant, and John J. Darby, whose registry number is 7196, access to the above application with power to inspect the application file in the Patent Office and make copies of all papers.

CROWN CORK & SEAL COMPANY, Inc.,

By H. B. Hunting
Vice-President

Approved,
E. H. Chapin
Aug. 6 1930.

Abandoned Aug 5/24

THE PERFORMANCE OF ALL AGREEMENTS ON OUR PART IS CONTINGENT UPON STRIKES, WARS, ACCIDENTS, AND OTHER CAUSES BEYOND OUR CONTROL

1760

2038

OFFICE TELEPHONE, NATIONAL 1788
RESIDENCE TELEPHONE, GEORGIA 3193

EDGAR J. CLARKSON
PATENTS AND PATENT CAUSES
1426 - G STREET N. W.
607 ALBEE BUILDING
WASHINGTON, D. C.

Paper #15

Jan. 8, 1935.

Hon. Commissioner of Patents
Washington, D. C.

Sir:

Please furnish as soon as possible a certified copy of the file wrapper and contents of the following application:

Albin H. Warth (Abandoned)
Ser. No. 130,631
Filed Aug. 21, 1926.

In a suit Crown Cork & Seal Co v. Gutmann in answer to interrogatory No 34 this application was identified deponent state that Defendant may have access thereto.

Enclosed please find $ to cover the cost of the above.

Approved Jan. 14, 1935
D. Sullivan

Respectfully
Kemp & Warland.
Attorney for Gutmann

% E.J. Clarkson
Box. 350

Consent is hereby given to inspect the above identified application and to make copies thereof.

CROWN CORK & SEAL COMPANY, INC.

By H. E. Justus
Vice President

1761

2039

8-21-26
4/23/28.

2—121

1926

CONTENTS:

1.	Application 1 papers.	26.	
2.	Rej. NOV 30 1926	27.	
3.	Letter - May 19-1927	28.	
4.	Rej. JUN 23 1927	29.	
5.	Letter - Dec. 9-1927.	30.	
6.	Final Rej. JAN 19 1928	31.	
7.	Appeal to Board - July 17-1928	32.	
8.	Ex. Statement July 28-1928	33.	
9.	Hearing. May 1-1929	34.	
10.	Power of Attorney & assignment Sept. 29/28	35.	
11.	Letter FEB 6 - 1929	36.	
12.	Brief May 17/29	37.	
13.	DECISION OF BOARD AUG 5 - 1929 Exam'd	38.	
	Cause to Interfere & Claim Aug. 6-1930	39.	
	Cause to Obtain Claim Jan 16 1931	40.	
14.		41.	
15.		42.	

1762

2040

ABANDONED 130631 Div 4C

217/198 R

O. G. FIG. CLASS SUB. CLASS

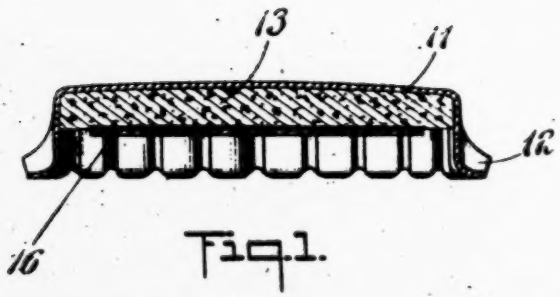


Fig. 1.

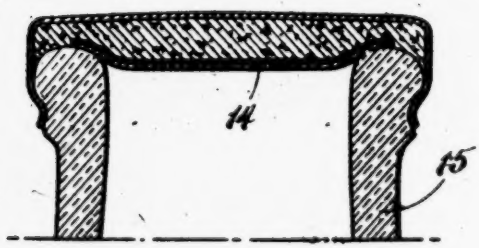


Fig. 2.

INVENTOR
Albin N. Wardh
BY
Philipp Lawyer Rice & Hume
ATTORNEY

[fol. 2041] DEFENDANT'S EXHIBIT DDDDD

IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

vs.

JOHNSON

DISTRICT OF COLUMBIA, ss:

John J. Darby, being first duly sworn, deposes and says:

1. That he is a member of the firm of Cushman, Darby & Cushman, attorneys for Warth in the above entitled interference.

2. That deponent has been instructed by the assignee of the Warth application to file suit for patent infringement against Ferdinand Gutmann & Co. of Brooklyn, New York, and that one of the patents to be included in said suit is Reissue 19,117, Warth, March 20, 1934.

3. That deponent has personally observed the operations in the factory of Ferdinand Gutmann & Co., and believes the same to be a clear infringement of not only the four claims of said reissue patent, but also of each of the claims involved in the above entitled interference.

4. That the Warth application in interference is divisional with respect to the said Reissue patent 19,117, and that it is [fol. 2042] therefore desirable to include in the prospective suit the subject matter in interference, as well as the said reissue patent.

5. That if priority is awarded Warth in this interference, as deponent believes should be done, the patent resulting from the Warth application in interference will be included in said suit.

6. That the said Ferdinand Gutmann & Co., is, in deponent's judgment, infringing the rights of Warth's assignee under the said reissue patent, and that the said assignee is being seriously damaged by the use of the method covered by said patent, as well as use by the said Ferdinand Gutmann & Co., of the method involved in interference.

7. That deponent has been instructed by the assignee of the Warth application to expedite in every way possible the issuance of the patent on the Warth application in interference, and will do so not only throughout this interference, but in any subsequent ex. parte prosecution of the Warth application.

Further deponent sayeth not.

John J. Darby.

Subscribed and sworn to before me this 2nd day of April, 1934. Theresa Buckhantz, Notary Public. (Seal.)

[fol. 2043] DEFENDANT'S EXHIBIT EEEEE

IN THE UNITED STATES PATENT OFFICE

Before the Examiner of Interferences

Interference No. 66,201

JOHN A. JOHNSON

vs.

ALBIN H. WARTH

Subject-Matter: Method and Apparatus for Assembling Linings in Closure Caps

Preliminary Statement of John A. Johnson

STATE OF NEW YORK,
County of Kings, ss:

John A. Johnson, being duly sworn, deposes and says that he is a party to the above-entitled interference No. 66,201 declared by the Commissioner of Patents April 20, 1933, between Letters Patent No. 1,852,578, issued to him April 5, 1932, for Method and Apparatus for Assembling Linings in Receptacle Closure Caps, on application Serial No. 409,793 filed by him on or about November 26, 1929, and an application of Albin H. Warth for Method of Manufacturing Bottle Caps and Apparatus Therefor: That he conceived the invention set forth in the declaration of interfer-

ence in the fall of 1925; that a drawing was first made of said invention during the fall of 1925 and further drawings [fol. 2044] were made in the fall of 1927; that he first disclosed the invention to others in the fall of 1925, and made further disclosures at various times from the first disclosure up to the filing, November 26, 1929, of the application for said Letters Patent No. 1,852,578; that the first written description of the invention was made during October-November, 1929; that the invention was reduced to practice by constructing a full size apparatus for carrying out the invention and successfully operating the same during the fall of 1927, and that sixteen (16) apparatus for carrying out the invention set forth in the declaration of interference have been constructed.

John A. Johnson.

Subscribed and sworn to before me this 10th day of May, 1933. Wm. W. Hulst, Notary Public, Nassau County. Certificate filed in Kings County. Clerk's No. 50, Kings Co. Regs. No. 210. Commission expires March 30, 1935. (Seal.)



(Here follows 1 photo, side folio 2045.)

17663

DEFENDANT'S EXHIBIT H H H H H

2015

"Thanks! You're a Life Saver!"

Motorists everywhere are looking for cold tasty carbonated beverages. Keep yours popular by sealing satisfaction in every bottle with Armstrong's Crowns.



Thirsty motorists soon brighten up when a tray of cold, sparkling carbonated beverages appears on the scene. Ice can keep these soft drinks cold—but only good crowns can keep them sparkling.

MOTORIST, golfer, swimmer, hiker—and nearly everyone else these days—is looking for thirst-satisfying carbonated beverages. You are probably getting your share of this business. Make sure of keeping it all through the year, by capping every bottle that leaves your plant with a tight-fitting Armstrong's Crown.

There is no lost flavor, no disappointed customers when Armstrong's Crowns are used. For more than seventy years Armstrong's have been Cork Headquarters. During this time they have processed cork through every step in its manufacture from tree to finished product. Their reputation for faithful service established over this period is your complete assurance that every Armstrong's Crown is *right*.

Conveniently located branch offices assure prompt deliveries on all orders, large or small. Address your order to the nearest branch office, or write directly to the Armstrong Cork Company, Cork Division, Crown Cap Section, Lancaster, Pennsylvania.

Branch Offices at Your Service

Boston	84 North Street
New York	80 Church Street
Pittsburgh	24th Street
Cincinnati	1017 Broadway
Detroit	507 Garfield Building
St. Louis	904 South 3rd Street
Baltimore	21 S. Charles Street
Chicago	111 North Canal Street
Atlanta	148 Piedmont Ave., N. E.
Philadelphia	402 N. 3rd Street
Lancaster	Liberty Street
Dallas	Lyons Bros. Co., P. O. Box 993

CORK MAKES THE CROWN!

Armstrong's

IS CORK HEADQUARTERS



Circle A Grade Natural Cork — Acco Grade Composition Cork — Paper Spot Composition Cork

BLANK

PAGE

[fols. 2046-2047] IN UNITED STATES DISTRICT COURT, EASTERN DISTRICT OF NEW YORK

Equity No. 7371

CROWN CORK & SEAL COMPANY, INC., Plaintiff,

against

FERDINAND GUTMANN & Co., Defendant

March 2, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff; George F. Scull and John J. Darby, of Counsel.

Hauff & Warland, Solicitors for Defendant; William E. Warland, Francis H. Warland, and N. L. Leek, of Counsel.

OPINION, CAMPBELL, D. J.

This is an action in equity in which plaintiff seeks relief by injunction and damages for the alleged infringement of the six following patents, for center spot crowns for bottles, and methods of making such spot crowns, to wit:

(1) Patent No. 1,339,066, issued to Charles E. McManus, for Bottle-Closure, dated May 4, 1920, on an application filed November 17, 1915; (2) Patent No. 1,899,782, issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc., for Material for Facing Bottle Caps and Method [fol. 2048] of Making Same, dated February 28, 1933, on an application filed December 17, 1929; (3) Patent No. 1,899,783, issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc., for Bottle Cap and Method of Manufacturing Same, dated February 28, 1933, on an application filed May 5, 1929, divided and this application filed October 31, 1930; (4) Reissue Patent No. 19,117, issued to Albin H. Warth, assignor, by mesne assignments, to Crown Cork & Seal Company, Inc., for Process of Producing Closures, dated March 20, 1934. Original No. 1,788,260, dated January 6, 1931, Serial No. 159,743, January 7, 1927. Application for reissue January 23, 1934; (5) Patent No. 1,956,481, issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc., for Spot Crown and Liner Material Therefor, dated April 24, 1934, on an application filed June 16, 1933; (6) Patent No. 1,967,195, issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc.,

for Method of Manufacturing Bottle Caps, dated July 17, 1934, on Original Application November 7, 1930, Serial No. 494,201, which in turn is a division of Serial No. 159,743, January 7, 1927, now Patent No. 1,788,260, dated January 6, 1931. Divided and this application filed April 4, 1933.

The general defenses of the defendant are, invalidity of all of the patents over the prior art, laches and estoppel on the part of the plaintiff as to one of the patents, non-infringement, lack of title to two of the patents in suit, owing to collusion in interference proceedings in the Patent Office, in which interference priority was purported to have been found in favor of the patentee Warth, prior use by the defendant and others as to some of the patents, prior use [fol. 2049] by the plaintiff as to some of the patents, the plaintiff has not come into Equity with clean hands, for the reason that it has suppressed evidence in the Patent Office in some of the interferences and applications, and also attempted to suppress evidence of other material facts. Defendant has also counterclaimed against the plaintiff alleging infringement of Patent No. 1,921,808, issued to Benno Cohn, assignor to Ferdinand Gutmann & Co., for Method of Making Closures, dated August 8, 1933, on an application filed July 20, 1932, the title to which patent is now in the defendant.

The plaintiff is a New York corporation with its principal factory at Baltimore, Maryland.

The defendant is a New York corporation with its factory in Brooklyn, New York.

Plaintiff's title to all of the said patents, except McManus No. 1,399,066 is stipulated.

As to the McManus Patent No. 1,399,066 plaintiff is the owner, and takes its title in the following manner:

Plaintiff was formed by a consolidation of New Process Cork Company and New York Improved Patents Corporation, each a corporation of the State of New York. The McManus patent in suit was assigned by McManus, to whom the patent issued to Cem Securities Corporation, which corporation granted an exclusive license under that as well as other patents to New Process Cork Company. The Cem Securities Corporation assigned the entire right, title and interest of the McManus patent in suit, together with other patents, to the plaintiff. No formal instrument transferring to plaintiff the exclusive license granted to the New Process [fol. 2050] Cork Company was shown, but since the New

BLANK

PAGE

BLANK

PAGE

Process Cork Company was one of the merging companies from which plaintiff was formed, obviously the exclusive license was thus carried to plaintiff, thus vesting in plaintiff both the legal title and any outstanding exclusive license.

The crown cap to which the center spot of the patents in suit is applied, has a thin metal shell with corrugated skirts, adapted to be pressed into engagement with a lip on the bottle, to hold the cap tightly in place. Inside the cap is a disc of cork, either natural cork or composition cork, the latter being made up of small particles held together by a binder. Without something on the disc, the liquid contents of the bottle come directly into contact with the cork disc. This has created a problem as to certain beverages, which has been solved by the center spots.

The desirability of covering the cork closure with some material which would prevent contact between the beverage and the cork was appreciated by the art for a long time. Where the bottle contents are not under gas pressure, this can be done by the "overall" form of closure, in which a sheet of paper or foil covers the entire surface of the cushion disc, but as this interposes the paper or foil between the entire bottle neck and the cushion disc, it is not suitable for pressure beverages. The cushion discs in such overall crowns are cut out of a composite sheet of cork or pulp board, which has previously been faced with the facing material.

For high pressure beverages which are to be held for a long time without leaking or breaking down, the center spot is designed, and it is particularly desirable for bever- [fol. 2051] ages having a national distribution from one or more bottling points, and to enable the use of relatively cheap composition cork discs. The facing material is applied to the cork disc, so that the cork can still function as a seal against the mouth of the bottle while, at the same time, the periphery of the center spot is also engaged by the neck of the bottle to prevent, so far as possible, the liquid in the bottle from reaching the cork disc of the closure.

The center spot crown illustrated on Exhibit 17 may be of paper or metal foil, and is large enough to extend part way over the lip of the bottle mouth, leaving a considerable area of the lip to be contacted by the cork disc itself which forms the pressure holding seal, while the center spot

keeps the beverage from contacting with the cork. Before being applied to the bottle, the center spot lies flat on the surface of the cork, but when the crown is placed on the bottle under very heavy pressure, the cork adjacent to the periphery of the shell is highly compressed, resulting in a deformation of the center spot, which subjects the center spot to a considerable stretching pressure, and the spot material must be strong enough to withstand it.

It is essential for pressure beverages that the spot be accurately centered on the cork disc. If it is not, a part of the center spot may extend over the entire surface of the neck of the bottle at one side, and thus permit leaking and, at the other side, it would be pulled away from the neck of the bottle, and thus permit the bottle contents to contact with the cork.

To prevent complaints as to the results of the bottling, either on the part of the bottler or consumer, the center [fol. 2052] spot crowns must be substantially perfect as the caps are applied to the bottles at a rate of speed as high as 160 a minute, and the bottler has no time to inspect each center spot crown to make sure that it is satisfactory.

Both to stand shipment and because of the conditions obtaining in the bottle capping machine itself, it is essential that the spots be very tightly affixed to the di-cs.

To meet the competition with other forms of corking, the spot crowns must be made cheaply, and to do this the spots must be accurately and positively placed in position, at a high rate of speed, and with a minimum number of "rejects" requiring subsequent operations.

A tremendous amount of spot crowns are made and sold today, at from 22 to 24 cents a gross, which includes the entire crown, consisting of the shell with its ornamental printing, the composition cork disc, and the center spot.

By the methods of the patents in suit, plaintiff is now applying these spots to crowns at the rate of 500 per minute for each operating unit, and its sales at the annual rate of about 9,000,000 gross of center spot crowns constituting about 30% of its entire crown production.

Plaintiff has some 15 licensees under the patents in suit, who are also producing center spot crowns, and adding defendant's output, the total annual output of center spot crowns is of very large proportions.

The first patent in suit is the McManus patent No. 1,339,066, of which claims 3 and 8, reading as follows, are in suit:

[fol. 2053] Claim 3:

"3. A bottle closure embodying therein a metallic cap, a compressible disc within said cap, and a flexible disc of non-absorbent material superimposed upon and united by means of a fusible binding medium with, said compressible disc, said superimposed disc being of smaller diameter than said compressible disc, whereby a sufficient portion of the surface of said compressible disc is exposed, to permit the sealing of the bottle directly against said compressible disc and the portion of the compressible disc within the neck of the bottle is protected by said flexible disc."

Claim 8:

"8. A bottle closure embodying therein a metallic cap, a compressible disc secured within said cap by means of a fusible binding medium, and a flexible disc of non-absorbent material superimposed upon, and united by means of a fusible binding medium with, said compressible disc, said superimposed disc being of smaller diameter than said compressible disc, whereby a sufficient portion of the surface of said compressible disc is exposed to permit the sealing of the bottle directly against said compressible disc and the portion of the compressible disc within the neck of the bottle is protected by said flexible disc."

This patent describes the center spot substantially as I have hereinbefore described it.

The patentee in his specification showed his knowledge [fol. 2054] of what is required in a center spot, and disclosed various ways to make such a center spot.

At page 2, commencing at line 75 of the patent, McManus describes the attachment of the flexible disc (center spot) to the compressible disc (cork disc), either by the binding medium used to bind the granules of the composition disc, or by the kind of binding medium used to hold the disc to the cap shell.

At the time of the filing of the application, the material used to hold the disc in the cap was a gum and resin combination. This was a thermoplastic cement; that is, one

which becomes tacky when heated so that, when it is pressed into contact with a surface, it will adhere thereto when the cement cools.

At page 2, lines 81-84, McManus says: "By using this bond, the disc e and the disc f may be assembled in relation to the cap and to each other by one and the same operation if desired."

With the exception of the so-called "White Rock" center spot, there is universally used, as the adhesive for attaching the center spot, a heat fusible, one such as gutta percha or a thermoplastic nitrocellulose-resin combination, which is one of the elements of the claims 3 and 8 in suit. The fusible binding medium has displaced the water soluble adhesives and the heat-set adhesives, the use of which was previously attempted by others in what proved to be commercial failures.

Center spot caps adhered by a heat-fusible cement were not commercialized by McManus because the particular thermoplastic used by him, consisting of copal and rosin, [fol. 2055] with a little wax to soften it, was rather brittle, and he attempted in his commercial production to use a water soluble adhesive, but the limitations of this adhesive in his commercial production rendered it unsuccessful.

The fact still remains that McManus was the first to perceive and disclose to the world the use of a heat-fusible cement, to stick the center spot to the cork, and it is immaterial that neither the plaintiff nor defendant uses the particular kind of thermoplastic bond that McManus gave as an illustration. duPont v. Glidden, 67 Fed. (2d) 392, 393.

The defendant has offered in evidence as the alleged prior art thirteen patents, the showing of which was not explained on the trial, but they have been discussed by the counsel for the respective parties in their briefs, and I will briefly consider the same.

French Patent No. 415,794, to Societe American Cork & Seal Company, published October 4, 1910, shows the so-called "American" form of a crown illustrated on chart 17, in which the cushion was a rubber ring and the center member analogous to a center spot, was a cup-shaped piece of foil with the cup extending over the ring to hold the latter in place. The spot was not adhered to the cushion disc but was soldered to the metal shell where the two metals were in contact, and solder obviously would not be useful in adhering a spot to a cork disc.

French Patent No. 463,971, to Montaner & Co., published March 10, 1914, shows a plain tin center spot on a cork disc, which is to be fastened to the cork by being "stamped or pasted," without further suggestion as to how this "stamp-[fol. 2056] ing" or "pasting" is to be done, and, in particular, what kind of "paste" is to be used.

British Patent No. 16,075, A. D. 1913, to Ernest Frederic Edouard DeMuth, accepted July 9, 1914, shows a metal foil center spot adhered to the cushion disc "by cementing or in any other appropriate manner." There is no suggestion as to how this cementing is to be done, or what kind of cement is to be used.

British Patent No. 26,297, A. D. 1909, to John MacCormack and David Eglin McPhun, accepted November 10, 1910, shows a disc A of wood pulp, the drawing showing the wood pulp disc contacting with the bottle top, but with the tinfoil disc B no larger than the interior of the neck of the bottle. Such a construction experience has shown to be wholly inoperative. The patent also contains the general statement, that the tinfoil is to be coated with some "adhesive substance," without any specification of the kind of adhesive to be used.

Patent No. 1,199,026, to John Alberti, granted September 19, 1916, shows a bottle-closure with a center spot crown. This is the nearest reference to the patent in suit. It taught the use of a wet-heat-set adhesive (albumen), which is not now in use, but did not even suggest the use of a thermoplastic to adhere the spot to the cork. The heat-set adhesive of Alberti was the reverse of the heat-fusible adhesive of the patent in suit, which latter adhesive has proved to be the solution as is shown by its present day universal use. The sample center spot crowns made by Alberti, produced from the files of the Patent Office, which were filed in connection with his application for patent, do not prove that the wet-[fol. 2057] heat-set crowns were commercially practical, because as Alberti says, they were made partially by hand, which, done slowly and carefully, can be accomplished with almost any kind of adhesive.

Patent No. 903,865, to John A. Jones, granted November 17, 1908, shows a method for making composition cork discs by the use of a solution of pure rubber. It discloses no center spot.

Patent No. 1,110,138, to John A. Jones, granted September 8, 1914, shows an ordinary crown cap in which a cork

composition is held in the shell. It discloses no center spot nor any kind of covering for the disc.

Patent No. 993,288, to Leonard Bartlett, granted May 23, 1911, shows a machine for making a crown of the type which uses a ring instead of a disc, and leaves no resilient member in the center. In the center of the crown metal foil was used which was cupped and flanged so that the center could be adhered to the crown, and the flanges could be used to hold the rubber ring in place. The rubber ring took the place of the cork but was not itself adhered to the metal shell. The so-called center spot was used as a means to hold the rubber ring in the shell and at the same time protect the rubber ring from the contents of the bottle. The so-called center spot was held to the shell by solder.

Patent No. 1,195,392, to George M. C. Nielsen, granted August 22, 1916, shows an elaborate machine for the manufacture of the so-called, "White Rock" or "Stewart" center spot crown, and in Figs. 13 and 15 the crown itself. The spot is a circular piece of metal foil, having its edges turned up to form a cup, and the edges inserted into a circular slit cut in the cork, thus holding the spot mechani- [fol. 2058] cally and not adhesively to the cork. The necessity for using in this type of spot crown natural cork and not a composition cork disc adds greatly to the expense, and prevents general competition with the crowns of the patent in suit. As the spot must be of metal foil, and cannot be of paper, its field is restricted as metal foils cannot be used with acidulated beverages, like dry ginger ale. It is used substantially by one company only.

This was the only commercial spot crown prior to that of the McManus patent in suit, and has been used by the White Rock Company since 1914.

Patent No. 1,129,578, to George F. Knox, granted February 23, 1915, shows a better seal for the ordinary crown cap, to accomplish which the patentee proposed having the bottles specially made with a circular groove in the top into which the cork would be pressed. He also provides a pliable facing sheet, which may be of tinfoil and is of a diameter approaching that of the cork disc. He expects the swelling of the cork to break the spot when applied to his specially shaped bottle top. Fig. 3 shows a special form in which there are a series of perforations to hasten this breaking. No reference is made to any adhesion of the

covering to the cork, and none is needed because he has lapped the covering material around the edges of the cork disc, as shown in Fig. 2.

Patent No. 408,177, to Daniel W. Johnson, granted July 30, 1889; Patent No. 957,064, to Charles R. Keeran, granted May 3, 1910; and Patent No. 796,356, to Frederick Recht, granted August 1, 1905, all of these three patents being [fol. 2059] referred to only as showing the state of the art. Each of these patents shows a cap of an overall form, the cushion disc of which has its entire face covered with the protecting material which, rather than the cushion disc itself, really forms the seal. This cap is not satisfactory for pressure bottling. No adhesive is mentioned, the obvious intent being that the protecting material shall be merely laid on the surface of the cushion disc. Reference is made to "wax," but it is to be used to seal the protecting disc to the mouth of the jar rather than to the cushion disc. No center spots are shown in any of the patents. None of the patents of the prior art anticipates the patent in suit.

From all the evidence it seems quite clear to me that neither gutta percha nor any thermoplastic or heat-fusible adhesive was used by the plaintiff or any one prior to 1917, and this is not overcome by the testimony of Smith in the interference proceeding, given entirely from recollection, and as to date given by him, about 1914, he then said, "I am not sure what it was in 1914."

From my examination of the prior art, it appears that what McManus did was much greater than a mere change of the adhesive, in fact it was the solving of a real problem which practical men in the art had tried and failed to solve, and the turning of failure to success by means not even suggested by the prior art.

This, I believe, constituted invention and the McManus patent in suit is valid.

I do not agree with the defendant's contention that the McManus patent is limited to parchment paper. Foil was, at the time of the filing of the McManus application a well [fol. 2060] known equivalent for paper in the manufacture of spot caps of other construction and while claim 2 of the patent in suit limits the spot to papers, claims 3 and 8, which are here in suit, are not so limited but require a disc of non-absorbent material.

In claim 3 of the patent in suit, a center spot crown is de-

scribed, the novel feature of which is a fusible binding medium for adhering the spot to the cork disc, and in claim 8 there is described a center spot crown in which a fusible binding medium is used to hold the spot to the disc, and to hold the disc in the shell of the crown.

The stipulated crowns, representative of those made by the defendant, Exhibits 6, 7 and 8, use gutta percha to adhere the spot to the cork disc, and this is heat-fusible. In defendant's caps, Exhibits 4 and 5, an adhesive known as #4620 duPont is used, which is also heat-fusible. These caps infringe claim 3 of the McManus patent in suit.

In defendant's caps, Exhibits 4 and 8, the disc is attached to the shell by a fusible binding medium, and infringe claim 8 of the McManus patent in suit.

In 1927, the patentee McManus acquired control of the plaintiff, of which the Crown Cork & Seal Company was a predecessor, and defendant contends that because there is nothing to show that McManus sued the Crown Cork & Seal Company for its infringement of his patent, plaintiff is guilty of such laches against defendant that neither an injunction nor any accounting should be granted. This contention is not sustained except for its abandoned experiment of January, 1925, defendant did not manufacture [fol: 2061] an infringing crown until late in 1928. McManus was engaged in litigation with the International Cork Co. until 1926, when he acquired it. McManus had been a stockholder in the Crown Cork & Seal Company from 1922, during which time he had been endeavoring to acquire control of the company.

It does not seem to me that defendant can justify its infringement which commenced years later by the fact that McManus merged his company with Crown Cork & Seal Company instead of indulging in expensive litigation with it while he was engaged in patent litigation with another company. There is no evidence that defendant was misled by the conduct of McManus.

There is no evidence that it came to the attention of McManus that the other companies mentioned by plantiff's witnesses were infringing, or its extent, but in any event, most of the companies mentioned accepted licenses under the McManus and other patents, as soon as the patent was called to their attention, and are paying royalties today.

The cases of Dwight & Lloyd Sintering Co. v. Greenawalt, 27 Fed. (2d) 823; Banker v. Ford Motor Co., 69 Fed. (2d)

665; and Westinghouse Electric & Mfg. Co. v. Jeffrey-DeWitt Insulator Co., 22 Fed. (2d) 277, are clearly distinguishable, as in none of them was it contended that there was any question of laches raised, because of the relationship of the plaintiff to other infringers than defendant.

The defendant also contends that the plaintiff is estopped from maintaining any suit against it based upon certain correspondence between the parties, and the assertion that [fol. 2062] plaintiff knew, in 1928, of defendant's infringement. This contention is not sustained. I find no reference in either letter as to patents, nor do I find any evidence to support defendant's assertion that plaintiff knew of defendant's infringement in 1928. The offer of plaintiff to sell to defendant, like other crown manufacturers, various kinds of cork discs, does not show any knowledg-ment of the fact of defendant's infringement or its extent. The letter of 1930 did not induce defendant to undertake the manufacture of infringing crowns for Goetz, whom it had been selling since 1928, or for any one else.

While I well understand that each case involving the defense of laches and estoppel, must be decided on its own facts, it seems to me that applying the general rules laid down in Benthall v. National, 222 Fed. 918, 922; Simpson v. Newport, 18 Fed. (2d) 318; Mills vs. Monarch, 49 Fed. (2d) 28, 30; and Walker on Patents, 6th Ed. Vol. 1, p. 726, cited by plaintiff, the defendant cannot succeed in that defense.

There is no proof in the case at bar that defendant, to its disadvantage, relied upon any act or lack of action of the plaintiff, or that defendant, during the period in question, changed its position, or that its actions were based upon an assumption that plaintiff did not intend to enforce its patent rights. It is not shown that plaintiff had knowledge of defendant's infringement prior to 1933.

The McManus patent No. 1,339,066, as to the claims in suit, is valid and infringed.

The second patent in suit is the Warth patent No. 1,899,782, of which claims 7 and 9, reading as follows, are in suit:

[fol. 2063] Claim 7:

"7. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough

paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of gutta percha."

Claim 9:

"9. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature, but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure."

Claim 7 is limited to a laminated bottle cap spotting material of hard, tough paper in strip form, with a coating of resistant varnish on one surface, and a coating of gutta percha on the other. Claim 9 is for a strip of bottle cap spotting material consisting of a metal foil coated on one side with a thermoplastic adhesive.

[fol. 2064] The claims in suit are for the strip as a new article of manufacture, and not for the machine or method of manufacture.

Briefly described, the patent shows a strip of paper, or other material, drawn between a series of rollers, and thereby one side of the material is coated with a coat of gutta percha. This gutta percha material is fed through a cap-assembling machine, and spots of the size required for center spot crowns are punched from this material, and the gutta percha center spots are secured to the cork lining of a cap by means of heat and pressure, causing the gutta percha to adhere to the cork or composition cork lining.

The plaintiff uses these strips in connection with the Wårth method of the patents in suit, to make paper spots and metal foil spots, respectively.

The defendant has offered in evidence as the alleged prior art, which were not explained on the trial but were discussed by the counsel for the respective parties in their briefs, the following patents:

Patent No. 1,213,926 to Charles E. McManus, granted January 30, 1917, a strip of tinfoil having a layer of paper, the exposed side of which was "gummed," and the other side bonded to the metal foil by some binding medium such as sodium silicate. The spotting strip of McManus was formed of two layers of material bonded to each other, the face of the paper being covered with a water-soluble adhesive, the gum being described as permitting the application of the material of the strip to a cork by dampening the cork itself.

Patent No. 1,638,541, to Charles E. McManus, shows a [fol. 2065] strip material to be used for "overall" discs to be placed in metal shells. The strip is made up of a layer of rubber to which is adhered a layer of paper having a cement binder to which another layer of paper is adhered. Discs are cut from this composite strip to be used instead of cork discs for bottle closures. This is not center spot material.

Patent No. 1,657,802, to Louvern G. Lange, granted January 31, 1928, shows a sheet of paper with one face coated with a water-soluble gum, and the other side coated with a quick-drying oil varnish. The cement of the sheet having been dried, it is run through water to wet the adhesive, and the dampened sheet is then pressed into contact with the pulp board to form a composite sheet from which the desired discs can be cut simultaneously across the entire width of the composite sheet. Discs for shells for jars for preserves, mayonnaise, mustard and the like can be punched from the composite strip material.

Patent No. 1,758,610, to Louvern G. Lange, granted May 13, 1930, contained but a single claim, which was granted to Warth as a result of interference No. 60,878, and is now claim 3 of the Warth patent in suit, No. 1,899,782.

In 1927, Warth built a combining machine by which strips of spotting material could have a thermoplastic adhesive combined with it, and had used the machine for combining metal foil with gutta-percha. The combined strip was first used in making the experimental lots of Warth paper spot crowns sent to Burroughs Bros., in April, 1927, and Macomber, in August, 1927. Lange's earliest date is his filing date of July 3, 1929.

Patent No. 983,319, to Smith, granted February 7, 1911, [fol. 2066] shows an overall type of closure, the sealing

pad of which has a sheet of Manila paper adhered to it, which paper is coated with a layer of cellulose varnish, and adhered to the pad by a water-soluble glue but not a thermoplastic.

Patent No. 1,238,156, to Reinhold Gustav Koch, granted August 28, 1917, shows an overall covering for a cork pad, the metal foil layer F being adhered to a paper covering by the vulcanized rubber E, the paper D, which is tough but absorbent, being adhered to the face of the cork a by the gutta percha C, and the cork a being adhered to the shell or cap A by a mixture of tartaric acid gum arabic and rosin, which by the application of heat sticks the cork disc to the cap.

Patent No. 1,358,834, to Frederick W. Farrell, granted November 16, 1920, shows a strip of paper coated with Trinidad asphalt, adapted to be used for sealing cartons.

Patent No. 408,177, to Daniel W. Johnson, granted July 30, 1889, which is referred to only as showing the state of the art, shows an overall sealing gasket in which a layer of parchment or parchmentized fiber is secured to a felted body by cement, the kind not being mentioned.

Patent No. 957,064, to Charles R. Keeran, granted May 3, 1910, which is referred to only as showing the state of the art, shows an overall closure with a cushion of pulp board, over which is a layer of blotting paper saturated with sealing wax, rubber, or the like, and below that a disc of oil paper which does not overlap the bottle lip.

The prior art shows that many inventors had the idea of [fol. 2067] a spotting material coated in some manner with an adhesive.

It is true that none of them had the exact combination of Warth, but the use of paper or metal for spots, with gutta percha as the adhesive, although not coated on the same strip, was known and had been in use by plaintiff as early as 1917.

McManus, as early as November 17, 1915, the filing date of his patent in suit No. 1,339,066, had disclosed the use of a fusible binding material in the place of a water-soluble adhesive or a heat-set adhesive, and it does not seem to me that with this teaching and the knowledge that was possessed by the art, there was any invention in selecting gutta percha or duPont 4620 as an adhesive, and coating the strip therewith, but that it was a mere substitution of material, made when it became desirable to put into use

commercially the McManus cap, using the fusible binding material. This finding renders unnecessary any extended consideration of the questions raised by the defendant as to filing dates and the Lange interference proceeding, and also as to whether the defendant has established its defense of prior use in 1925; but in any event, it was established that defendant, in 1925, manufactured about 300,000 center spot crowns for the Inecto Company, using for the material from which the center spot was cut strips on which gutta percha and tinfoil were mounted together; and although the defendant abandoned its experiment, and whether it can be or cannot be considered as an anticipation, as to the spotting strip alone, it does show that the use of gutta percha and metal for spotting strips was known to the art.

[fol. 2068] The claims in suit of the Warth patent No. 1,899,782 do not show novelty or invention and are invalid.

The third patent in suit is Warth patent No. 1,899,783, of which claim 4, reading as follows, is the only one in issue:

Claim 4:

"4. A bottle closure comprising a metallic shell, a cushion disc in said shell, a facing disc of hard, high-gloss paper having a varnished outer surface, said disc being of smaller diameter than and concentric with said cushion disc, and a stratum of gutta percha co-extensive in area with the facing disc between the latter and the cushion disc and adhesively uniting the two discs."

This patent relates to bottle caps and the method of manufacturing the same, but claim 4 in suit relates only to the bottle cap and not to the method.

In his specification Warth describes at length what had preceded it, and then what he has done to overcome the difficulties.

He describes as the center spot material he uses (commencing p. 3, l. 33) a tough paper having a hard or high-gloss finish, for example such as termed a water-finish "which will not fracture, has an inherent resistance to liquids and gases, and serves as an excellent carrier for an exposed or outer facing of varnish and for a backing layer of water insoluble, heat-fusible, and acid and gas-resistant adhesive."

For his hard high-gloss paper he recommends "express [fol. 2069] paper, sulphite paper or bleached kraft paper having a water-finish, i. e., high-gloss finish" (p. 3, l. 75).

He uses a varnish which consists of "resin, China-wood oil and a drier, and containing a plasticizer (p. 4, l. 113), and for his adhesive gutta percha (p. 3, l. 111).

Warth says he began his investigation which led to this patent in suit in 1920, and that he did considerable experimenting.

The defendant offered in evidence the following alleged prior art, the showing of which was not explained on the trial, but they have been discussed by counsel for the respective parties in their briefs, and I will briefly consider the same.

Patent No. 1,339,066, to Charles E. McManus, granted May 4, 1920, which is here in suit, shows the use of a fusible binding medium in a center spot cap with a disc, "made of a hard parchment paper, or of any other paper so treated as to make it non-absorbent."

Patent No. 983,319, to Eugene C. Smith and Victor E. Smith, granted February 7, 1911, shows an overall seal in which a piece of Manila paper 3, was held to the pad by a water-soluble adhesive made up of glue, glycerine and sugar, with the outer coating of Manila paper covered with a celluloid varnish.

Patent No. 1,238,156, to Reinhold Gustav Koch, granted August 28, 1917, shows an "overall" covering for a cork disc, the material next to the bottle contents being the metal foil F. The foil is adhered to a sheet of paper by vulcanized rubber and the paper, in turn, is held to the cork by gutta percha.

[fol. 2070]. Patent No. 1,215,737, to George Emil Stahl, granted February 13, 1917, shows an overall closure. Next to the beverage was tissue paper, which was held to a jute stock paper layer by gutta percha with a couple of layers above it. It does not seem to me that this cap could be used for beer as Stahl thought, because its overall character would prevent it from holding high pressure beverages, and the tissue paper, if used for acidulated beverages, would be readily penetrated by the moisture.

Patent No. 1,779,884, to Louvern G. Lange, granted October 28, 1930. This patent does not show a paper spot crown of the Warth construction, and is not prior art to this patent in suit.

Patent No. 671,191, to Edward W. Hanauer, granted April 2, 1901, shows the use of gutta percha to fasten the turned-up bottom of trousers to the trousers leg.

Patent No. 957,064, to Charles R. Keeran, granted May 3, 1910, shows an overall closure of the "Mason jar" type, consisting of a piece of oil paper 9, which does not overlap the lip of a bottle, and is in contact with the contents of the bottle. It is adhered to a layer of blotting paper 8, by sealing wax, rubber or the like, and above but not adhered to it is a cushion disc 7, of soft pulp board.

Patent No. 408,177, to Daniel W. Johnson, granted July 30, 1889, shows a closure of the "Mason jar" type, with a "sealing gasket" of "parchment or parchmentized fiber," secured to a "felted body" by being cemented in any suitable manner. This is not a paper spot crown.

Center spot crowns were not new with Warth but were known to the art for years before any date of invention [fol. 2071] shown by Warth, as was also the use of composition cork discs. The use of paper for the center spot or a fusible binding medium were not new, as both had been disclosed by McManus in his patent No. 1,339,066.

From a consideration of the prior art, it seems to me that if there be invention in this patent, it must reside in the particular kind of facing material, and the particular kind of binder; but in view of the teaching of the prior art, especially of McManus No. 1,339,066, there was no invention over McManus No. 1,339,066 or the prior art in selecting a facing disc of hard high-gloss paper or gutta percha as the adhesive, but all that Warth accomplished by his patent in suit, No. 1,899,783, resulted from a mere substitution of material when the plaintiff desired to commercially produce the heat-fusible caps suggested by McManus.

Warth patent in suit No. 1,899,783 shows no novelty or invention and is invalid.

The fourth patent in suit is Reissue Patent No. 19,117 to Albin H. Warth, granted March 20, 1934, and discloses a Process of Producing Closures, of which claims 1 and 3, reading as follows, are in suit:

Claim 1:

"1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises

providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant [fol. 2072] adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden."

Claim 3:

"3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot [fol. 2073] upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure."

This patent is for a method which is described as follows:

Warth supplies a strip of thermoplastically-coated facing material, such as metal foil or paper coated with gutta percha to a punch which cooperates with a die. A line of assembled crowns (that is, crowns having the metal shell and the cork disc therein) is fed step by step beneath this

die. With the assembled crowns at rest beneath the die, the plunger descends, cuts a center spot from the strip of facing material and presses it down against the cork with the adhesive in contact with the cork. In his illustrative drawings Warth has shown heat applied to the cutting plunger. This warmed plunger supplies sufficient heat to the center spot to make the thermoplastic tacky when it is pressed against the cork. Then the cutting plunger rises and the crown, with the center spot stuck on it, moved to the next position, where it is subjected again to pressure from a heated plunger. Then this plunger rises and the crown moves on to the fifth step, where a cold plunger under pressure is applied to the spot, the pressure being maintained for a considerable time while the adhesive is cooling. [fol. 2074] This method has great advantages over the plaintiff's first or slide machine, which operated about 50 or 60 strokes a minute, and has enabled plaintiff to design machines which successfully spot 500 per minute from each unit.

Although not satisfactory, plaintiff continued to use the slide machines for a period of about eight years, until a new machine, based on ideas furnished by Warth, working on a different method, was designed, built, and put in operation.

The defendant offered in evidence the following alleged prior art, which was not explained on the trial but has been discussed in the briefs on behalf of the respective parties:

Patent No. 1,339,066, to Charles E. McManus, one of the patents in suit, granted May 4, 1920, disclosed the fundamental idea of utilizing a thermoplastic for adhering the center spot to the crown, but did not show a machine or a method for applying the spots at any satisfactory commercial rate of speed.

Patent No. 1,213,926, to Charles E. McManus, granted January 30, 1917, shows merely a strip of facing material for making center spots. McManus proposed to provide his foil with a sheet of paper adhered to the foil by water glass, the other face of the paper being covered with a water soluble gum. The adhesive is not thermoplastic, and no method is shown by which the spots could be applied at a high rate of speed.

Patent No. 1,402,780, to Charles E. McManus, granted January 10, 1922, shows a bottle cap making machine. Such a machine was used to a very small extent in making spot crowns for nearly ten years. The strip material was coated

[fol. 2075] with a water-soluble adhesive, the cork disc was dampened by a moistening dauber, and then the disc cut out of the strip material was pressed down on this wetted surface, in an attempt to cause it to adhere. According to the testimony of McManus, he could never get any speed out of such a machine because of the tendency of the spot to float on top of the crown before it could be adhered to it.

Patent No. 1,199,026, to John Alberti, granted September 19, 1916, and Patent No. 1,401,300, to John Alberti, granted December 27, 1921, the second patent being referred to only as showing the state of the art. The first of these patents shows a metal foil spot held to the cork by a heat-set adhesive albumen, and the second, the machine for applying it.

Patent No. 993,288, to Leonard Bartlett, granted May 23, 1911, shows a machine devised to make the so-called American type of center spot crown, in which a rubber ring-shaped gasket 20 is held in place by a cupped piece of aluminum 21, the flanges of which extend over the ring-gasket, and the center of which is pasted by some adhesive material to the metal shell itself. Bartlett refers to the adhesive material as "paste or other adhesive material," which is to be deposited in the shell and then the cupped piece of metal pressed down upon it.

Patent No. 1,603,786, to Melchor Marsa, granted October 19, 1926, referred to only as showing the state of the art, shows a method for adhering cork discs in the shells. A sheet of sheet metal is spotted with a resinous cement in the center, the shells are cut out with the resinous cement in the center, the disc is inserted in the shell, the cork disc 16 [fol. 2076] placed on it, and then the resinous cement is melted by a gas flame and subjected to pressure to cause the cork disc to adhere to the shell. Does not relate to center spot crowns.

Patent No. 887,883, to William H. Wheeler, granted May 19, 1908, referred to only as showing the state of the art. It does not refer to the center spot crown, but shows a crown assembling machine in which the cork disc is adhered to the shell by means of collets of paraffin paper.

Patent No. 792,284, to William Painter, granted June 13, 1905, and Patent No. 887,838, to William Painter, granted May 19, 1908, both of which patents are referred to only as showing the state of the art, show respectively the original crown cap and machine for making it. The cork disc is

held in the shell by means of an adhesive placed on a paper collet placed between the cork and the shell, the adhesive being heated and then submitted to pressure to cause the disc to adhere to the shell. Neither patent relates to center spot crowns.

An examination of the prior art patents, it is true, shows some suggestions in one patent and some in another, of some of the elements of the Warth invention, such as the idea of coating a strip with an adhesive, but not one that was thermoplastic, the idea of cutting out a disc and applying it to a cork, but none of them disclosed the Warth method. To none, whatever was the teaching of the prior art, did it suggest the possibility of a method such as Warth's, which could be used to produce center spot crowns in such commercial quantities, at a very high speed, which is an impor- [fol. 2077] tant consideration in crown cap production. International v. New Process, 6 Fed. (2d) 420.

It is quite possible to carry out the Warth method by the use of a plunger, to which the heat is directly applied, although in that case there must be careful control of the heat in order to prevent the punch from becoming so hot as to cause a gumming of the punch itself from the tacky adhesive, or so cold as to supply insufficient heat to cause the spot to adhere.

Warth disclosed his method and it was unnecessary for him to show any apparatus for carrying it out. He was not limited to the particular form of apparatus illustrated as being useful for carrying out his method. It is sufficient that it has been shown that his illustrative apparatus is wholly operative, even if it was not the best which could be devised for commercial operation.

The Warth method has had large commercial success.

Men skilled in the art had long sought by various methods to accomplish what Warth teaches, and the fact that he succeeded where they failed is an evidence of invention, and the fact that parts of his method were old does not negative invention, as by the use of all the elements of his method he produces a new result in a different way.

Defendant in addition to the prior art patents relies upon the alleged prior use by the defendant and the alleged prior use by the plaintiff to limit or invalidate the patents.

Without going into any extended description of the method the defendant contends it used in making the center

spot caps for the Inecto Company, whatever it did was a [fol. 2078] temporary makeshift, which was abandoned as soon as it was able to perfect the making of the White Rock crown.

The only element of which it was able to present other than purely oral testimony, based solely on recollection, was that it obtained rolls of tinfoil and had surgical tissue combined with this foil. Defendant did not produce the machine nor any of the spot crowns which it claims that it used and made, and neither such machine nor spot crowns are in existence. No such machine was reproduced and proof offered that the operation which is described was possible. No drawings or other contemporaneous documentary proof was offered as to the method which was carried out by the machine, or as to the construction of the machine itself. The evidence offered as to the attachment made by Nagy for defendant, having a die for cutting center spots, is immaterial to the issue, as that attachment was made for the White Rock type of crown, and defendant's contention that it was changed by defendant itself, to adapt it to the making of the spot caps for the Inecto Company, is not supported by any documentary evidence. The testimony of Benno Cohn, Secretary of the defendant, and Charles H. Rasmussen, Superintendent of the defendant, given ten years after the alleged event, and based entirely on recollection is the proof on which defendant relies as to the alleged method.

The remaining officers and employees of defendant called, were Jay Bernard Eisen, who did not enter the defendant's employ until after the alleged making of the crowns in ques- [fol. 2079] tion, Jesse Gutmann, Vice President and Sales Manager, who knew nothing as to manufacture and production of the alleged Inecto crowns, but did negotiate the sale of the center spots to the Inecto Company, Ferdinand Gutmann, President of the defendant, who knew nothing of their production, and Samuel Cohn, Treasurer of the defendant, who knew that the Inecto crowns were made and approved of the expenditures involved, but did not testify as to method. None of the defendant's mechanics were called, although it is claimed the changes to its mechanism were made by its own mechanics, nor were such mechanics named or the failure to call them explained, although Superintendent Rasmussen was requested to look them up and said he would do so, and defendant had available its employees' time-book going back as far as 1921.

The fact that defendant has sufficiently proved the purchase of the tinfoil strips in 1925 does not prove the method, nor does the fact that they were used in some manner prove that the Warth method was used, as there were many different ways in which the adhesive strip could have been used other than in the way described by the witnesses.

Without questioning in any way the belief of Cohn and Rasmussen in the truth of their testimony, it is too uncertain, based only on recollection of what is alleged to have happened ten years before, to furnish proof beyond reasonable doubt, to anticipate the Warth method patents in issue. And in addition we must not forget that even the alleged prior use was abandoned and not resorted to when three years later defendant began making spot crowns.

[fol. 2080] The evidence of plaintiff's expert Weisenburg corroborated by Wilbur, as to the reproduction of the machine described by Cohn, and the results obtained in following the method described by Cohn, as shown by the crowns offered in evidence, is quite convincing that it was not possible, with such a machine, to produce commercial spot crowns, which leads to the belief that Cohn and Rasmussen must unconsciously have made some error in their recollection after the long period of years.

Of course, in the limited time at Weisenburg's disposal during the trial, the tests were necessarily ex parte, but plaintiff offered to repeat the tests inter partes, which offer defendant ignored.

The defendant's excuses for abandoning its alleged prior use, without going into details, are not convincing, and the actions of the defendant when it decided to make the spot crowns in 1928, clearly stamp whatever it did in 1925 as an abandoned experiment. Further, the proofs as to the paraffin coating of the Inecto spot crowns lead me to the belief that there is some error as to the method which Cohn and Rasmussen described as that used in 1925.

The alleged prior use of plaintiff asserted by the defendant is that of plaintiff's first or slide machine, in which a strip of tinfoil and a separate strip of gutta percha tissue were fed together beneath a cutting punch which punched out the two discs and deposited them in a cavity, in a movable slide. Then, the slide moved horizontally to carry out the cutout discs beneath an electrically heated suction plunger which picked up the two discs out of the cavity in

the slide. Then, the slide again moved from beneath the [fol. 2081] punch back to its original position, and the heated plunger with the discs sucked against its face was moved downward to deposit the discs on the cork of an assembled crown, to stick the spot to the cork disc, the suction pressure being released at the same time and changed to blowing, to help remove the spot from the end of the heated punch. The pressure of this heated punch caused the gutta percha to stick to the cork and also to the foil spot. The finished crown was then ejected from the machine. The combination of steps defined in the Warth methods of the patents in suit are not found in the plaintiff's first or slide machine, and it does not anticipate.

Defendant contends that it does not infringe because in its machine heat is not applied directly to the punch. This contention appears to me to overlook the requirements of the claims.

Claims 1 and 3 each provide, "and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky thereby causing the spot to adhere to the cushion material."

It is true that the defendant as does the plaintiff in commercial practice, instead of applying the heat directly to the punch as illustrated in the drawing of the Warth reissue patent No. 19,117 in suit preliminarily heats the cork disc.

Defendant's electrical preheating and post heating plungers are as close to the punch as is practicable and engage the cork disc at stations immediately preceding and following the punch station. The sole purpose of preheating the cork immediately in advance of the punch is to create heat, which will be available at the instant the spot [fol. 2082] is deposited, so that there will be provided the combined effect of heat and pressure. In the defendant's Johnson machines, the temperature of the punch, although heat is not directly applied, is as high as 140° (gutta percha becomes tacky at about 120°). While the heat in the punch is not sufficient alone to effect the desired stick it enables the operation to be conducted with less heat being applied to the cork, which tends to blacken and become scorched when too much heat is applied.

The claims in suit are not limited to the application of heat directly to the punch, and they are not so limited by the drawing offered by Warth in the prosecution of his

patent, simply for the purpose of illustrating a suitable means for effecting the simultaneous application of heat and pressure at the instant of depositing the spot.

The prior art did not, nor do I find anything in the records of the Patent Office actions which limit the claims in suit to producing in any particular way the heat which is utilized at the instant of assembly.

The defendant's contention that it was using a method involving the application of pressure to the caps in a cooling drum while the adhesive cools and hardens, at least as early as August 8, 1933, which was prior to the application for reissue, has no bearing on the validity of claim 1 which appeared in the original patent and was carried over into the reissue. It has no bearing on claim 3, which is like claim 1, except that it specifies the additional step of applying pressure while the adhesive is cooling and hardening. The application for reissue was filed as soon as it was dis- [fol. 2083] covered that the claims of the original patent did not specifically cover the "cooling under pressure" step, and even if defendant may have been using a process as defined in claim 3, including the cooling under pressure, prior to the date of application for reissue, such use does not anticipate claim 3.

Defendant infringed claim 1, carried over from the original patent, and since the reissue was filed to obtain more limited claims acquired no intervening rights. Abercrombie & Fitch Co., et al. v. Baldwin, et al., 245 U. S. 198; Babcock & Wilcox Co. v. Springfield Boiler Co., et al., 16 Fed. (2d) 964; Ball and Roller Bearing Co. v. F. C. Sanford Mfg. Co., 297 Fed. 163; Maitland v. Goetz Mfg. Co., 86 Fed. 124; Vortex Mfg. Co., et al. v. F. N. Burt Co., Limited, 297 Fed. 513; Hawie Mfg. Co. v. Hatheway Mfg. Co., et al., 27 Fed. (2d) 937; Steiner & Voegtly Hardware Co. v. Tabor Sash Co., 178 Fed. 831.

There was no laches in the application for the reissue which voided the claim. Motion Picture Patents Co. v. Laemmle, 214 Fed. 787.

The question of the speed of the defendant's machines does not seem to me to be in any sense controlling. The defendant's Cohn and Johnson machines are different from plaintiff's, but that machinery operates in accordance with the Warth method, and that defendant has not been able to equal plaintiff's high rate of production is no defense.

Elyria Iron & Steel Co. v. Mohegan Tube Co., 7 Fed. (2d) 830, 831; Waxham v. Smith and The Buckeye Incubator Company, 55 Sup. Ct., 277.

Defendant also denies infringement because of the difference in amount of pressure which it uses on its post-heat- [fol. 2084] ing plunger, or on its cutting punch, as compared with the pressure under which the spot is held while the adhesive is cooling. Defendant also attempts to distinguish from the Warth method when operating under the Cohn patent, in that it says, the cork disc has not been firmly adhered to the metal shell when the center spot is applied to the cork disc.

Neither the disclosure nor the claims of Warth limit the use of pressure solely at the cutting punch. Defendant applies heat and pressure to cause "the spot to adhere to the cushion material" or to "effect adhesion" to the cork before the plungers of the cooling drum are reached, and that constitutes infringement. The adhesion having been caused before the plungers of the cooling drum are reached, the pressure applied by the plungers is immaterial.

The Warth reissue patent, No. 19,117, as to the claims in suit is valid and infringed.

The fifth patent in suit is the Warth patent No. 1,956,-481, of which claims 6 and 16, reading as follows, are in issue:

Claim 6:

"6. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative."

[fol. 2085] Claim 16:

"16. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and resin."

The patent is for a spot crown and liner material therefor, and the specification describes a center spot crown,

in which the center spot is adhered to the cork disc by a suitable cellulose derivative, such as nitrocellulose, to which a modifying agent to enhance the adhesive characteristics of the cellulose derivative has been added, such modifying agent being a resin and preferably a synthetic resin.

The defendant offered in evidence the following alleged prior art patents, but did not explain them on the trial. They are discussed in the briefs of the respective parties.

Patent No. 1,199,026, to John Alberti, granted September 19, 1916, shows a closure with heat coagulated albumen adhesive.

Patent No. 1,339,066, to Charles E. McManus, granted May 4, 1920, shows Bottle-Closure with resin-thermoplastic adhesive.

Patent No. 1,710,453, to Maurice Valentine Hitt, granted April 23, 1929, shows a nitrocellulose coating composition and film made therefrom, which in addition to the nitrocellulose contains many solvents and plasticizers, and in some cases resins are added. The composition is not thermoplastic. The fact that the Hitt patent number may be [fol. 2086] found on the cans in which 4620 is contained, does not prove that the Hitt material is the same as 4620. While it may well be that 4620 may employ the invention of Hitt, it may, because of different proportions of the materials, or because different materials are used, be wholly unlike the composition of the Hitt patent for some purposes. This is the fact in so far as this case is concerned, as 4620 is a thermoplastic, and the material of the Hitt patent is not.

The Article in the June or July, 1932, number of the duPont Magazine, extolling the virtues of 4620.

Patent No. 1,325,075, to Joseph J. Byers, granted December 16, 1919, shows a composite sheet stuck together with some cellulose derivative mixed with a non-drying vegetable oil, such as caster oil. The use of nitrocellulose alone as an adhesive was known, and nitrocellulose as an adhesive was old, but it is not thermoplastic. The patentee on page 1, beginning at line 72, states that a cement may be prepared by dissolving some cellulose derivative in any suitable solvent, such as acetone and alcohol, and on page 3, lines 40 to 44, he also states that heat applied in conjunction with pressure will cause the substance to act as a permanent cement.

Patent No. 1,389,084, to Lawson B. Wilson, granted August 30, 1921, shows a plastic cement for repair or mending, comprising celluloid, acetone and a phenol, to which Wilson suggests may be added certain softening agents, fillers and pigments. Among the fillers suggested are shellac, gums and resins of various kinds. It is true that if phenol were omitted, and if the proper kind of resin, and [fol. 2087] in the correct proportions to the nitrocellulose were used, Wilson would have a thermoplastic cement, but Wilson makes no suggestion of the thermoplasticity, and no suggestion of omitting phenol.

Reissue patent No. 16,803, to Edmund M. Flaherty, granted November 29, 1927, shows a low viscosity lacquer and film produced therefrom. This lacquer is not thermoplastic, and I do not see the relevancy of that patent.

Patent No. 1,554,033, to Ebenezer Emmet Reid, granted September 15, 1925, shows a cellulose composition, which is a combination of a cellulose derivative with a butyl phthalate. No proof was offered to show whether butyl phthalate is or is not a resin, but as Reid says one of the uses to which his material may be put is for varnishes, it can not be a thermoplastic. A varnish which would become tacky at a low heat would be unusable.

Patent No. 983,319, to Eugene C. Smith and Victor E. Smith, granted February 7, 1911, shows an overall covering for a cork crown, the adhesive to be used being a water-soluble adhesive and not a thermoplastic, and consisting of glue, glycerine and sugar or molasses.

The following patents to Albin H. Warth, all of which are referred to as showing the state of the art.

Patent No. 1,867,637, granted July 19, 1932, shows a closure and interior facing therefor, using a gutta percha or gum adhesive.

Patent No. 1,908,498, granted May 9, 1933, shows method of manufacturing liner material for container closures, with a gutta percha adhesive.

[fol. 2088] Patent No. 1,788,260, granted January 6, 1931. This is the original reissue No. 19,117, and shows process of producing closures using gum adhesive mixed with vegetable oil.

The ordinary center spot cap disclosed in the patent in suit differs only from the old and well known type of center spot cap, in that instead of being secured by dammar

BLANK

PAGE

BLANK

PAGE

gum, gutta percha, albumen, or any desired adhesive specified in the prior art, it is secured by means of a cellulose derivative adhesive, or specifically, a cellulose derivative and a resin.

It seems to me that the nitrocellulose adhesive called for by claims 6 and 16 is disclosed in the prior art, particularly in Byers patent No. 1,325,075.

In any event, the adhesive disclosed is a thermoplastic heat-fusible material, and its use represents only a substitution of material over the prior art, and no invention.

The contention of the plaintiff that Warth conceived the invention and reduced it to practice in the Fall of 1926 is erroneous. Whatever those experiments were, they seem to have been abandoned, because on receipt of the first sample of duPont Company 4620, January, 1932, Warth began to experiment with it the same as did the defendant, with the result that defendant made commercial shipments in June and July, 1933, whereas plaintiff did not use 4620 commercially until June, 1934.

If Warth had invented and reduced to practice the nitrocellulose resin adhesive in 1926, it is difficult to believe that he would have, about three years thereafter, made the affidavit filed May 5, 1929, in the prosecution of Serial No. [fol. 2089] 360,895, in which he claimed to have discovered the desirable properties of gutta percha as an adhesive for center spot caps, or made a duplicate of that affidavit on December 22, 1932, in Serial No. 492,546, filed October 31, 1930. This last mentioned affidavit was not shown to Dr. Warth but it appears in the certified copy of the file of No. 492,546, Exhibit A.

As 4620 is superior to gutta percha, and both of these affidavits were made after January, 1932, when Dr. Warth said they first received 4620, it seems quite clear to me that Dr. Warth had not invented and reduced to practice a cellulose derivative adhesive in the Fall of 1926 nor had he progressed very far with his experiments with 4620.

The testimony of Mr. McManus, President of the plaintiff, Mr. Weisenburg, plaintiff's engineer, and Mr. Wilbur, a chemist for plaintiff, is quite convincing, that Dr. Warth had not succeeded in 1930, and that Mr. Weisenburg and Mr. Wilbur were still working on nitrocellulose and resins in 1931. This is inconsistent with the plaintiff's claim of

invention and reduction to practice by Warth in the Fall of 1926.

Dr. Warth had been trying to obtain a suitable nitrocellulose adhesive from the duPont Company and had obtained several kinds of nitrocellulose adhesives from them.

Finally Mr. Foley, of the duPont Company, told Dr. Warth that the company had put out an adhesive, No. 4620, which he (Mr. Foley) thought would be suitable for Dr. Warth's purpose. Mr. Foley knew that Dr. Warth wanted such an adhesive for applying center spots to caps.

Both plaintiff and defendant are using the patented prod-
[fol. 2090] uct of the duPont Company, and I am unable to find invention in the Warth patent in suit, No. 1,956,481.

The Warth patent No. 1,956,481, claims 6 and 16 in suit, is invalid for lack of invention.

The sixth patent in suit is the Warth patent No. 1,967,-195, of which claims 1, 2 and 3, reading as follows, are in suit:

Claim 1:

"1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads."

Claim 2:

"2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive
[fol. 2091] surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads."

Claim 3:

"3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof."

This patent discloses a method of manufacturing bottle caps.

The method claimed comprises punching the center spot from a strip of thermoplastically-coated material, applying such spot to the cork disc with heat, obtained by preheating the cork disc, and pressure, and then allowing the adhesive to cool with pressure applied to the spot.

[fol. 2092] This is the same method as that described and claimed in Warth Reissue Patent No. 19,117, which was a generic method patent, except that in the method of Reissue Patent No. 19,117, he left it to choice as to how the heat for the adhesive was to be obtained, whereas in Patent No. 1,967,195 in suit, the specific patent, he included the additional limitation that the heat for the adhesive was to be obtained by preheating the cork disc.

The defendant offered in evidence the following alleged prior art patents, which were not explained on the trial, but were discussed in the briefs of the respective parties.

Patent No. 1,199,026, to John Alberti, granted September 19, 1916, shows a metal foil spot held to the cork by a heat-set adhesive albumen.

Patent No. 1,339,066, to Charles E. McManus, granted May 4, 1920, discloses the fundamental idea of utilizing a thermoplastic for adhering the center spot to the crown, but did not show a machine or a method for applying the spots at any satisfactory commercial rate of speed.

Patent No. 1,213,926, to Charles E. McManus, granted January 30, 1917, shows merely a strip of facing material

for making center spots. McManus proposed to provide his foil with a sheet of paper adhered to the foil by water-glass, the other face of the paper being covered with a water-soluble gum. The adhesive is not thermoplastic, and no method is shown by which the spots could be applied at a high rate of speed.

Patent No. 1,402,780, to Charles E. McManus, granted January 10, 1922, shows a bottle cap making machine. Such a machine was used to a very small extent in making spot [fol. 2093] crowns, for nearly ten years. The strip material was coated with a water-soluble adhesive, the cork disc was dampened by a moistening dauber, and then the disc cut out of the strip material was pressed down on this wetted surface, in an attempt to cause it to adhere. According to the testimony of McManus, he could never get any speed out of such a machine, because of the tendency of the spot to float on top of the crown before it could be adhered to it.

Patent No. 993,288, to Leonard Bartlett, granted May 23, 1911, shows a machine devised to make the so-called American type of center spot crown, in which a rubber ring-shaped gasket 20 is held in place by a cupped piece of aluminum 21, the flanges of which extend over the ring-gasket, and the center of which is pasted by some adhesive material to the metal shell itself. Bartlett refers to the adhesive material as "paste or other adhesive material," which is deposited in the shell, and then the cupped piece of metal pressed down upon it.

Patent No. 1,852,578, to John A. Johnson, granted April 5, 1932, shows a method and apparatus for assembling linings in receptacle closure caps. The method claims of that patent, 28, 29 and 30, were copied into the second divisional application, serial number 664,410, and the Warth-Johnson interference 66,201 was declared, which resulted in an award of priority to Warth. This interference will be more fully discussed later.

Patents to Alexander Bogdanffy, No. 1,169,608, granted January 25, 1916; No. 1,053,565, granted February 18, 1913; and No. 1,053,898, granted February 18, 1913. Each shows [fol. 2094] a machine for making the standard non-spotted crown cap, the cork disc being adhered to the metal shell by a heat-fusible (usually resinous) adhesive. None of them called for the heating of the cork disc before the spot is applied thereto.

Patents to William Painter, No. 468,226, granted February 2, 1892, No. 792,284, granted June 13, 1905, and No. 887,838, granted May 10, 1908; the last two referred to only as showing the state of the art. The first is for the original bottle-sealing device of Painter, and the two latter are for the original crown cork patents in which a heat-fusible adhesive was used to hold the cork disc to the shell.

Patent No. 1,401,300, to Emilio Alberti and John Alberti, granted December 27, 1921, referred to only as showing the state of the art, shows a machine for manufacturing closures for bottles and other receptacles. It does not teach the use of a thermoplastic adhesive, and did not suggest the application of heat to the cork before the spot is applied.

Patent No. 1,134,031, to Robert G. Clark, granted March 30, 1915, referred to only as showing the state of the art, shows bottle cap assembling machine, and has no bearing on any method of applying crown caps to corks.

Patent No. 887,883, to William H. Wheeler, granted May 19, 1908, referred to only as showing the state of the art, shows an assembling machine which has no relation to center spots.

As I have said when considering the prior art as to Warth Reissue Patent No. 19,117, and for the same reasons, the prior art does not suggest the possibility of a method such as Warth's, which could be used to produce center spot [fol. 2095] crowns in such commercial quantities, at very high speed.

It is unnecessary to repeat what I said with reference to the alleged prior uses by defendant and plaintiff, in my discussion of Warth Reissue Patent No. 19,117, or any other defenses, because whatever I then said, so far as it is applicable here, I reassert as though repeated here.

The parent Warth application resulting in his patent No. 1,788,260, and which later became Reissue No. 19,117, was filed on January 7, 1927, Serial No. 159,743. It contained in addition to the broad idea of using heat and pressure simultaneously with the deposit of the spot, the specific disclosure, as suitable procedure, the preheating step. It is true as contended by the defendant, the description of preheating which was originally contained in this application was cancelled by amendment, on December 3, 1930, but it is also true that at the time this description of the "preheating" procedure was cancelled, Warth had on file a divisional application, Serial No. 494,201, which had been

filed on November 7, 1930, prior to the date of cancellation of the descriptive matter from the parent case. From this divisional application, a second division, Serial No. 664,410, was filed on April 4, 1933, containing precisely the three claims in suit and the patent issued, after an interference on this application. Therefore, Warth had in the Patent Office a complete disclosure of this preheating, from January 7, 1927, when the parent application was filed, until April 4, 1933, when the application resulting in Warth Patent No. 1,967,195 in suit was filed. The subject matter was not [fol. 2096] abandoned, as suggested by defendant, but was specifically reserved by continuous inclusion in the divisional application, and later in the second division. This has been approved and is the usual practice. Writer v. Kiwad, 63 Fed. (2d) 259.

Defendant urges as a defense that it purchased certain machines from Johnson in 1928, and that having used the machines, it is entitled to continue to do so, as well as to use additional machines which it purchased in 1933.

This brings us to a consideration of the Warth-Johnson Interference, No. 66,201.

There was no delay in provoking the interference with Johnson.

Plaintiff discovered early in 1933, the Johnson patent No. 1,852,578, dated April 5, 1932, on an application filed November 26, 1929, and immediately provoked the interference by copying the claims of the patent.

Warth did not copy the claims in the first division, Serial No. 494,201, filed November 7, 1930, but carved out of the same the second division for the interference.

There was no delay on the part of Warth after receiving notice of the Johnson patent.

After a preliminary motion, Warth's attorneys proceeded to take testimony and subpoenaed Johnson as their first witness, and Johnson offered to settle.

A settlement was finally arrived at whereby Johnson assigned his patent No. 1,852,578 to plaintiff, and was given a license under his patent, and also under plaintiff's patent No. 1,788,260, to continue the manufacture of the machines for plaintiff's licensees.

[fol. 2097] Counsel for Johnson and Warth did not care to take the responsibility of deciding the question of priority between Warth and Johnson, therefore those instruments

were placed in escrow pending final determination of the interference by the Patent Office, and the assignment remained in escrow until the Patent Office decided the question at final hearing.

The decision of the Examiner of Interferences was in favor of Warth.

Defendant contends that plaintiff should have made an election as between the Johnson patent and Warth application, after the license and assignment were executed, rather than permit the Patent Office to settle the question, and in support of that contention refers to Rule 94 of the Patent Office Rules of Practice.

This contention was not sustained.

Plaintiff did not have the legal title entitling it to make such an election until the interference was decided by the Patent Office as the assignment was in escrow.

Notwithstanding that plaintiff was convinced that the claims properly belonged in the Warth application, it was not possible to make the election in favor of the Warth application, and plaintiff could pursue no other course.

The Patent Office was fully informed as to the situation.

Rule 94 did not apply as it required an election when two applications of common ownership are involved in an interference, but did not permit an election in favor of an application when it is involved in interference with a patent. Even if plaintiff had held the assignment which it did not, [fol. 2098] it could not have made the election in favor of the application. Chillas v. Weisberg, 1928 Commissioner's Decisions, p. 24.

Defendant cites United Chromium v. General Motors Corp., 11 Fed. Supp. 694, but that case seems to me to be distinguishable, as in that case election was made in favor of the patentee by the applicant filing a concession of priority.

The decision of the Patent Office in an interference proceeding does not bind the Court, but the question of priority of invention, when properly raised, may be litigated in an action, and assuming that plaintiff on the evidence was convinced that Warth was the first inventor, it could not properly concede priority to Johnson, and with the assignment in escrow, it did not then have legal title to the Johnson patent.

Johnson's claims were limited to the step of preheating the cork, and as late as October, 1928, Johnson had not

manufactured a machine for practicing such a method. The earlier 1928 machines, sold to the Cuban concern in March, to Gutmann in July, and to Armstrong in May, had no preheater.

It appears to me that the only difference between these machines and the machine purchased by Gutmann in August, 1928, was the fact that a drum was applied to the latter machine, for permitting the crowns to cool under pressure.

Johnson did visit plaintiff's plant in the early part of 1928, and was taken by McManus into the spotting department, and during Johnson's visit there, McManus says there was some discussion of patents relating to the spotting machinery, and this is corroborated by Johnson's letter to the Armstrong Company, on April 24, 1928.

[fol. 2099] Although Johnson had been working since early in 1927, to perfect a machine, he had not discovered either the importance of cooling under pressure, or the advantage of preheating the cork immediately in advance of the cutting punch.

Warth's machines had been in use since 1926, drawings of the machines being in evidence. These drawings were for three machines to supplement the three identical Warth machines at that time in actual use, as shown by the January, 1927, appropriation for three additional machines.

The preheating was disclosed in the Warth application filed January 7, 1927.

The defendant's two machines, purchased in July and August, 1928, did not have a preheater, and did not embody the method of the Warth patent, No. 1,967,195, in suit.

The decision of the Patent Office in the interference was in entire accord with the facts.

The fact that Johnson, in 1929, built some machines for the plaintiff on special order for plaintiff's own use, does not affect the validity of the Warth patents, and does not anticipate a divisional application. American Chain Co. v. Franklin New York Co., 34 Fed. (2d) 551-555.

There was no anticipation by defendant's 1928 use, whatever method it used.

Defendant purchased two machines from Johnson, in July and August, 1928, and it is not proved that its 1928 machines had a preheater; on the contrary, Johnson admitted that prior to October, 1928, he did not have preheaters on any machines, and there is no uncertainty on

this point, as the letters (Exhibit 36) show that he was then [fol. 2100] "working on what we call preheaters of the cork."

Johnson it is true testified, on direct examination, that the 1928 machines were all "like" his patent No. 1,852,578, and repeated this testimony when he identified the list of a number of machines, but he evidently did not mean that they had a preheater, since on cross examination he modified his testimony, when confronted by plaintiff with an actual photograph of March 1, 1928, Cuban machine, which he admitted had neither a drum nor a preheater. This machine, which Johnson said was exactly like the unsatisfactory machine shipped to the Armstrong Company, merely used two heating punches. Cohn admitted that the machine purchased by defendant, on July 17, 1928, was like the one shown in the photograph. The machine purchased by the defendant in August, 1928, had a drum, but there is no evidence that it had a preheater, and Johnson admits that it did not.

There is no evidence to show that the Johnson machines sold to others than plaintiff and identified on the list had a preheater, or what was their construction, aside from Johnson's statement, which he changed under cross examination. There is no proof of the date of the Johnson Catalogue, and it is therefore without value. The machines purchased by defendant from Johnson, in 1928, had no preheater, and I am convinced that defendant made no further purchase from Johnson until 1933, therefore the defendant has not proved any use of the preheating method, to anticipate the filing date of the first divisional application, November 7, 1930, or the filing date of the second divisional application, April [fol. 2101] 4, 1933. Even if there was evidence of the use of the Johnson machines during these periods, such user would not anticipate. From 1927 to 1930, Warth was prosecuting his broad claims to the method. The claims were not directed during this period to the Warth specific preheating step. Such manner of proceeding has been approved. Hartford-Empire Co. v. Nivison Weiskopf, 58 Fed. (2d) 701.

As soon as it came to Warth's attention that any one else was claiming the invention he, being unaware of what methods others were using, and having no knowledge of defendant's using the preheating method, proceeded as the statutes permitted, and in accordance with the practice recognized by the Patent Office and the courts. Overland Co. v. Packard Co., 274 U. S. 417.

In making the claims to the preheating step Warth was covering what he had invented, without any intent to expand his disclosures to cover later methods which had come to his attention. This has been approved by the courts. Carson v. American Smelting and Refining Co., 4 Fed. (2d) 463, 470; Remington Cash Register Co. v. National Cash Register Co., 6 Fed. (2d) 614; Overland Co. v. Packard Co., supra.

The case at bar is clearly distinguished on the facts from Westinghouse Electric & Manufacturing Co. v. Jeffrey-De-Witt Insulator Co., supra, and Dwight & Lloyd Sintering Co. v. Greenawalt, supra. In the Westinghouse case, there was no proof of special circumstances, and in the parent application the patentee had not claimed the invention of his delayed divisional application, either generically or specifically. In the Dwight & Lloyd case, there had been [fol. 2102] open, notorious infringement for thirteen years, known to the plaintiff, who had been in interference proceedings with the defendant, and there were no special circumstances, as here, justifying the delay.

The contention of the defendant that if the Warth Reissue Patent No. 19,117 be interpreted to cover generically the step of preheating the pads, it anticipates the divisional Warth patent No. 1,967,195, is not sustained.

The claims in suit in the Reissue Patent No. 19,117 require "and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky."

The claims in suit in the divisional patent No. 1,967,195 require "heating the pads in the caps."

None of the claims of the divisional patent is readable upon the disclosure of the reissue, and therefore when the Reissue Patent expires, the public will be free to practice the method without infringing the divisional patent, that is, the public may employ any method of obtaining the heat at the instant of assembly except the specific "heating the pads in the caps" covered in the later patent.

The Reissue Patent is the generic and the divisional the specific patent, and therefore the reissue does not anticipate the divisional patent.

It does not seem to me that the result of the issuance of the divisional patent extends the monopoly of the Johnson patent. Johnson was not the first inventor of the method, and the patent could not afford a monopoly on the method.

There was no delay on the part of plaintiff when it first learned of the improper grant to Johnson, and to hold the patent invalid on that ground would be to penalize the [fol. 2103] plaintiff because of the inadvertent grant to another, who was not the original inventor.

In addition to what has been said with reference to Warth Reissue patent No. 19,117 as to infringement, which need not be repeated here, it is also true that the defendant does use the method of preheating as described in the claims in suit, of Warth patent No. 1,967,195.

The Warth patent No. 1,967,195 as to the claims in suit is valid and infringed.

This leaves for consideration only patent No. 1,921,808, issued to Benno Cohn, assignor to Ferdinand Gutmann & Co., granted August 8, 1933, pleaded by the defendant as a counterclaim. The defendant is the owner of this patent.

The patent is for a method. The empty shells are fed into the machine from a hopper, then heated, an adhesive placed in the metal shell, the cork disc inserted in the metal shell, and the caps are then carried to the spotting mechanism so that the cork (either natural or composition) liner is put in the shell and a center spot inserted, all in one machine.

There are three claims to the patent and all are in suit, but I need not quote them.

The reply pleaded a general denial, which raises only the issue of infringement.

The defendant's charge of infringement is predicated on the fact that the Crown Cap Manufacturing Company of Brooklyn sent a standard Johnson assembling machine to Nagy to have an attachment added, that would place center spots on the corks while the crown was being assembled, and that Nagy delivered such a machine to the Crown Cap Manufacturing Company early in 1933 or late in 1932.

In July, 1933, the Crown Cap Manufacturing Company [fol. 2104] sold its assets, including this machine, to plaintiff.

Defendant's witness Fries said that he could never get this machine to work so that it could produce commercially. Whether or not there was something wrong in the manner in which the Crown Cap Company attempted to operate this machine, as contended by defendant's counsel, Fries says that he never could fully determine what the difficulty was, otherwise he would have corrected it. It certainly was his intention to go on manufacturing in accordance with the

method of this combined machine. I therefore believe that the machine would not work to produce commercially.

Fries remained in charge for four months after July, 1933, when the plaintiff took over the assets of the Crown Cap Manufacturing Company. During those four months this machine was never operated by the Crown Cap Manufacturing Company, by him or by any one in that plant.

This machine was sent to the Baltimore plant of plaintiff, it is still on the skids, has never been used by plaintiff, and has never been set up for operation.

There is no proof of any use of this machine by the plaintiff, and if the testimony of Fries be accepted, and I see no reason why it should not be, the machine would not work to produce commercially, therefore there is no proof of infringement.

McManus says that such a machine was never considered by him as having any value, because it was slow, and that there was no advantage in having the spotting machine connected to the assembling machine.

[fol. 2105] Taking all that has been said into consideration with the fact that if properly workable, which it was not, this machine, which was experimental, would have had a rate of production of about 200 a minute, as against plaintiff's machine which produces 500 a minute, the mere possession of this machine raises no inference even of a threat of infringement.

More than an inference is necessary to prove infringement, particularly of a method patent.

The plaintiff does not and has not infringed.

The defendant's counterclaim as to patent No. 1,921,808 is dismissed, on the ground of non-infringement.

A decree may be entered in accordance with this opinion, in favor of the plaintiff against the defendant on McManus patent No. 1,339,066; Warth Reissue patent No. 19,117; and Warth patent No. 1,967,195; and dismissing the defendant's counterclaim on Cohn patent No. 1,921,808; with four-sevenths costs and disbursements; and in favor of the defendant against the plaintiff dismissing the bill of complaint on the merits as to Warth patent No. 1,899,782; Warth patent No. 1,899,783; and Warth patent No. 1,956,481; with three-sevenths costs and disbursements.

Settle decree on notice.

Submit proposed findings of fact and conclusions of law, in accordance with this opinion, for the assistance of the

Court, as provided by Rule 70-½ of the Equity Rules and Rule 11 of the Equity Rules of this Court.

[fol. 2106] In United States District Court

[Title omitted]

Stipulation as to Findings of Fact and Conclusions of Law

It is hereby stipulated by and between the solicitors for the respective parties that the opinion of the Court filed herein March 2, 1936, may be considered as the findings of fact and conclusions of law in this case, pursuant to Rule 70½ of the Equity Rules and Rule 11 of the Equity Rules of this Court, reserving to both parties any and all rights of appeal as to any and all errors of fact or law that may be embodied in such findings and conclusions.

Dated March 11, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

[fol. 2107] In United States District Court

Present: Hon. Marcus B. Campbell, U. S. District Judge.

In Equity. No. 7371

Crown Cork & Seal Company, Inc., Plaintiff,

vs.

Ferdinand Gutmann & Co., Defendant

Interlocutory Decree—March 23, 1936

This cause having come on to be heard upon the pleadings and proofs of the respective parties and having been submitted on briefs for the respective parties, the Court having considered the same, and the parties having stipulated that the opinion of the Court filed March 2, 1936, may be considered as the findings of fact and conclusions of law in this case, and as a compliance with Rule 70½ of

the Equity Rules and Rule 11 of the Equity Rules of this Court, it is

Ordered, Adjudged and Decreed

1. That Letters Patent of the United States No. 1,339,066 issued to Charles E. McManus for Bottle Closures, dated May 4, 1920, are good and valid in law as to claims 3 and 8.

[fol. 2108] 2. That Reissue Letters Patent of the United States No. 19,117 issued to Albin H. Warth, assignor by mesne assignments to Crown Cork & Seal Company, Inc., for Process of Producing Closures, dated March 20, 1934, are good and valid in law as to claims 1 and 3.

3. That Letters Patent of the United States No. 1,967,195 issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc., for Method of Manufacturing Bottle Caps, dated July 17, 1934, are good and valid in law as to claims 1, 2 and 3.

4. That the title to said Letters Patent No. 1,339,066, Reissue No. 19,117 and No. 1,967,195 and the inventions described and claimed in each of them is vested in the plaintiff.

5. That the defendant, Ferdinand Gutmann & Co., has infringed upon claims 3 and 8 of said Letters Patent No. 1,339,066 and upon claims 1 and 3 of said Reissue Letters Patent No. 19,117 and upon claims 1, 2 and 3 of said Letters Patent No. 1,967,195, and each of them, and upon the exclusive rights of the plaintiff thereunder.

6. That plaintiff recover from the defendant the gains, profits and advantages which it has received or made or which have arisen or accrued to it by reason of its said infringements and also the damages which the plaintiff has sustained by reason of said infringements.

7. That the said cause be referred to —— ——, as master pro hac vice to ascertain, state and report to the Court [fol. 2109] separate accounts of the gains, profits and advantages which the defendant has received or which have arisen or accrued to it by reason of said infringements of claims 3 and 8 of said Letters Patent No. 1,339,066; claims 1 and 3 of said Reissue Letters Patent No. 19,117, and claims 1, 2 and 3 of said Letters Patent No. 1,967,195 and

also the damages plaintiff has sustained by reason of said infringements.

8. That the plaintiff on said accounting have the right to an examination of said defendant and its officers, agents, servants, attorneys and workmen ore tenus and otherwise and also the production of the books, vouchers and other documents of the defendant, and that the defendant and its officers, agents, servants, attorneys and workmen attend for such purpose before such master from time to time as said master shall direct, and that the master and each party may from time to time during such accounting apply to the Court at the foot of this decree for such further directions as may be necessary.

9. That the defendant and its officers, agents, employees, workmen and confederates be enjoined and restrained permanently by injunction, hereby authorized to be issued, from directly or indirectly practicing the processes of claims 1 and 3 of said Reissue Letters Patent No. 19,117 and claims 1, 2 and 3 of said Letters Patent No. 1,967,195, or making or causing to be made, using or causing to be used, selling or causing to be sold products embodying the inventions of claims 3 and 8 of said Letters Patent [fol. 2110] No. 1,339,066, and from infringing upon or violating the exclusive rights of the plaintiff thereunder in any way whatsoever.

10. That the bill of complaint be and it hereby is dismissed as to Letters Patent of the United States No. 1,899,782 dated February 28, 1933, No. 1,899,783 dated February 28, 1933, and No. 1,956,481 dated April 24, 1934.

11. That the counterclaim be and it hereby is dismissed.

12. That the plaintiff recover from the defendant four-sevenths and that the defendant recover from the plaintiff three-sevenths of the costs to be taxed herein.

Marcus B. Campbell, United States District Judge.

Approved as to form.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

[fol. 2111] IN UNITED STATES DISTRICT COURT

[Title omitted]

DEFENDANT'S PETITION FOR APPEAL

The defendant, Ferdinand Gutmann & Co., conceiving itself aggrieved by the Interlocutory Decree made and entered herein on the 23rd day of March, 1936, does hereby appeal to the United States Circuit Court of Appeals for the Second Circuit, from that part of said decree which

1. Holds the patent to McManus, #1,339,066, dated May 4th, 1920, good and valid in law as to claims 3 and 8 and that the defendant has infringed said claims.

2. From that part of said decree which holds that Reissue Letters Patent of the United States, #19,117 to Albin H. Warth, dated March 20th, 1934, are good and valid in law as to claims 1 and 3 and that the defendant has infringed said claims.

3. From that part of the decree which holds that Letters Patent of the United States, #1,967,195 to Albin H. Warth, [fol. 2112] dated July 17th, 1934, are good and valid in law as to claims 1, 2 and 3 and that the defendant has infringed said claims.

4. From that part of the decree which holds that the counterclaim of defendant be and is dismissed.

That the reasons for said appeal are specified in the Assignment of Errors which is filed herewith, and it prays that this appeal may be allowed and a citation granted directed to the above named Crown Cork & Seal Co., Inc., commanding it to appear before the United States Circuit Court of Appeals for the Second Circuit, to do and receive what may appertain to justice to be done in the premises, and that a transcript of the record, proceedings and papers upon which said decree was made, may be duly authenticated and sent to the United States Circuit Court of Appeals for the Second Circuit.

Hauff & Warland, Solicitors for Defendant.

Dated, New York, March 24th, 1936.

ORDER ALLOWING APPEAL

Ordered, that the foregoing appeal be, and the same hereby is allowed.

Marcus B. Campbell, United States District Judge.

Dated, Brooklyn, N. Y., March 26th, 1936.

[fol. 2113] IN UNITED STATES DISTRICT COURT

[Title omitted]

DEFENDANT'S ASSIGNMENT OF ERRORS

Now Comes the defendant, Ferdinand Gutmann & Co., and presents with its accompanying Petition for Appeal from the Interlocutory Decree entered herein, the following Assignment of Errors:

1. The Court erred in holding the McManus Patent No. 1,339,066 as to claims 3 and 8 thereof to be valid in law and infringed.

2. The Court erred in holding that claims 3 and 8 of the McManus Patent in issue are not anticipated by the prior art.

3. The Court erred in holding that neither gutta percha nor any thermoplastic or heat fusible adhesive was used by the plaintiff or anyone prior to 1917 in the manufacture of center spot caps. (W. E. W.)

4. The Court erred in not holding that the use of gutta percha as an adhesive for center spots was used prior to [fol. 2114] July 1, 1915, as appears from the plaintiff's own testimony and the Preliminary Statement made by plaintiff's assignor in Interference No. 60,878.

5. The Court erred in not holding that the use of gutta percha as an adhesive was used in the bottle cap art long prior to the date of the application for the McManus patent.

6. The Court erred in holding that there was no laches on the part of plaintiff and its predecessor in title, viz., McManus, in waiting fourteen years and four months before bringing suit on the McManus patent.

7. The Court erred in not holding that center spot crown caps made in accordance with the McManus patent were used by all the manufacturers of center spot crowns without molestation by the plaintiff or McManus, its predecessor in title, for seventeen years before the beginning of the present suit.

8. The Court erred in holding that the correspondence between plaintiff and defendant in 1930 did not constitute an estoppel by plaintiff.

9. The Court having found that center spot caps per se, secured by any adhesive, were old, erred in holding that the mere selection of a particular adhesive by McManus constituted invention.

10. The Court erred in holding that what McManus did was much greater than a mere change of the adhesive.

[fol. 2115] 11. The Court erred in holding that what McManus did was the solving of a real problem and the turning of failure to success by means not even suggested by the prior art.

12. The Court erred in holding that the McManus patent is not limited to paper or parchment.

13. The Court erred in holding there was no evidence that defendant was misled by the conduct of McManus and the plaintiff.

14. The court erred in holding that the Reissue Patent to Albin H. Warth No. 19,117 dated March 20th, 1934, was good and valid as to claims 1 and 3 thereof and infringed by the defendant.

15. The Court erred in holding that Warth was not limited to the particular form of apparatus illustrated.

16. The Court erred in holding that Warth in his Re-issue Patent No. 19,117, produced a new result in a different way.

17. The Court erred in broadly construing the Warth Reissue Patent No. 19,117.

18. The Court erred in holding that the method set forth in Warth Re-issue Patent No. 19,117 was not disclosed in the prior art.

19. The Court, after finding that the patents to Bogdanffy and Painter showed that a heat fusible adhesive was used to [fol. 2116] secure the cork disc to the shell by the application of heat and pressure, erred in finding that there was invention in securing the center spot to the cork disc by the same adhesive and by the same method of utilizing heat and pressure that had been used in the Bogdanffy and Wheeler patents for securing the cork lining to the metal shell.

20. The Court erred in holding that the evidence offered as to the attachment made by Nagy for defendant having a die for cutting center spots is immaterial to the issue.

21. The Court erred in holding that the 300,000 caps having center spots cut from metal foil coated with gutta percha made by defendant for the Inecto Company was not an anticipation.

22. The Court erred in holding that the 300,000 caps made and sold to the Inecto Company by the defendant in 1925 was an abandoned experiment.

23. The Court erred in holding that the defendant's excuses for abandoning its alleged prior use without going into details were not convincing.

24. The Court erred in not holding that the heat and pressure used by plaintiff in its slide machine in 1915 anticipated claims 1 and 3 of the Warth Re-issue Patent in suit.

25. The Court erred in holding that claims 1 and 3 of the Warth Re-issue Patent in suit are not limited to the application of heat directly to the punch.

[fol. 2117] 26. The Court erred in holding that neither the prior art nor anything in the records of the Patent Office limits the claims in suit to producing in any particular way the heat which is utilized at the instant of assembly.

27. The Court erred in holding that there was no laches in the application for the Re-issue.

28. The Court erred in holding that neither the disclosure nor the claims of Warth limits the use of pressure solely at the cutting punch.

29. The Court erred in holding that defendant applies heat and pressure to cause the "spot to adhere to the

cushion material'' or to ''effect adhesion'' to the cork before the plungers of the cooling drums are reached.

30. The Court erred in holding that the pressure applied by the plungers in the cooling drum in defendant's method is immaterial.

31. The Court erred in holding that the testimony of plaintiff's witnesses Weisenburger and Wilbur showed that with the method described by defendant's witness Cohn it was not possible to produce commercial spot crowns.

32. The Court erred in holding that claims 1, 2 and 3 of the patent to Warth 1,967,195 are valid in law and infringed by defendant.

33. The Court erred in holding that what it had previously said in its Opinion about the prior uses by plaintiff and defendant in connection with the Re-issue Patent 19,117 to Warth applied to Patent No. 1,967,195.

34. The Court erred in holding that Patent No. 1,967,195 to Warth, the application for which was filed on April 4th, [fol. 2118] 1933, was a proper division of Patent No. 1,788,260 issued on January 6th, 1931.

35. The Court erred in holding that Warth's application No. 494,201, filed November 7th, 1930, showed the subject matter of Patent No. 1,967,195.

36. The Court erred in holding that the preheating of the cork was disclosed in the Warth application filed January 7th, 1927.

37. The Court erred in holding that the two machines purchased by Johnson from defendant in July and August, 1928, did not have a pre-heater and did not embody the method of Warth Patent No. 1,967,195.

38. The Court erred in holding that there was no anticipation by defendant's 1928 use, whatever method it used.

39. The Court erred in holding that the machines purchased by defendant from Johnson in 1928 had no preheater and that defendant made no further purchase from Johnson until 1933.

40. The Court erred in overruling defendant's contention to the effect that if Re-issue Patent No. 19,117 be interpreted

to cover generically the step of pre-heating the pads, it anticipates the divisional Warth Patent No. 1,967,195.

41. The Court erred in holding that the issue of the divisional patent did not extend the monopoly of the Johnson patent.

[fol. 2119] 42. The Court erred in holding that Warth and not Johnson was the first inventor of the method set forth in Patent No. 1,967,195.

43. The Court erred in not holding that defendant was licensed to use the method shown in the Johnson patent in view of the fact that it had bought in good faith such patented machines from Johnson more than two years before the divisional application for Patent No. 1,967,195 in suit was filed.

44. The Court erred in not finding that the plaintiff had purchased four machines from Johnson like those shown in his Patent No. 1,852,578 in 1929 and that Warth was guilty of laches in not applying for Patent No. 1,967,195 until April 4th, 1933, more than four years after defendant bought machines from Johnson.

45. The Court erred in dismissing defendant's counterclaim on the Benno Cohn Patent No. 1,921,808 and refusing an injunction after finding that the plaintiff had purchased such a machine in 1933 and now has such machines in its plant.

Wherefore, the defendant prays that the Decree entered herein on the 23rd day of March, 1936, be reversed and that a Decree be entered dismissing the Bill of Complaint and granting an injunction against the plaintiff to defendant on its counterclaim for infringement of the Benno Cohn Patent No. 1,921,808.

Dated, New York, N. Y., March 24th, 1936.

Hauff & Warland, Solicitors for Defendant.

[fol. 2120] Citation, in usual form, showing service on Gifford, Scull & Burgess, omitted in printing.

[fol. 2121] IN UNITED STATES DISTRICT COURT

[Title omitted]

PLAINTIFF'S PETITION FOR APPEAL

The plaintiff, Crown Cork & Seal Company, Inc., conceiving itself aggrieved by the decree made and entered herein on the 23rd day of March, 1936, does hereby appeal from the said decree to the United States Circuit Court of Appeals for the Second Circuit for the reasons specified in the assignment of errors which is filed herewith; and it prays that this appeal may be allowed and a citation issued directed to the above named defendant, Ferdinand Gutmann & Company, commanding it to appear before the United States Circuit Court of Appeals for the Second Circuit, to do and receive what may appertain to justice to be done in the premises, and that a transcript of the record, proceedings and papers upon which said decree was made may be duly authenticated and sent to the United States Circuit Court of Appeals for the Second Circuit.

Gifford, Scull & Burgess, Solicitors for Plaintiff.

Dated, New York, N. Y., March 31st, 1936.

[fol. 2122] ORDER ALLOWING APPEAL

The parties having entered into a stipulation dispensing with the filing of appeal bonds and said stipulation having been approved by the Court, it is hereby

Ordered, that the foregoing petition for appeal be, and the same hereby is, allowed.

Dated April 1, 1936.

Marcus B. Campbell, United States District Judge.

IN UNITED STATES DISTRICT COURT

[Title omitted]

PLAINTIFF'S ASSIGNMENT OF ERRORS

Now, comes the plaintiff, Crown Cork & Seal Company, Inc., and presents with its accompanying petition for ap-

peal from the decree entered herein, the following assignment of errors:

1. The Court erred in dismissing the bill of complaint as to Letters Patent to Warth No. 1,899,783 and No. 1,956,481.

[fol. 2123] 2. The Court erred in failing to grant the relief prayed for in the bill of complaint as to Letters Patent to Warth No. 1,899,783 and No. 1,956,481.

3. The Court erred in that it did not enter a decree finding that Letters Patent No. 1,899,783 to Warth is valid as to claim 4 thereof and has been infringed by the defendant.

4. The Court erred in that it did not enter a decree finding that Letters Patent No. 1,956,481 to Warth is valid as to claims 6 and 16 thereof and has been infringed by the defendant.

5. The Court erred in that it did not enter a decree for an injunction restraining the defendant from infringement of Letters Patent No. 1,899,783 and No. 1,956,481.

6. The Court erred in that it did not enter a decree awarding plaintiff an accounting for profits and damages by reason of the infringement by the defendant of Letters Patent No. 1,899,783 and No. 1,956,481.

Wherefore, the plaintiff prays that the decree entered herein on the 23rd day of March, 1936, insofar as it relates to Letters Patent No. 1,899,783 and No. 1,956,481, and each of them, be reversed, and that a decree be entered in accordance with the prayers of the bill of complaint herein with regard to said Letters Patents, and each of them, with costs to the plaintiff.

Gifford, Scull & Burgess, Solicitors for Plaintiff.

Dated, New York, N. Y., March 31st, 1936.

[fol. 2124] Citation, in usual form, showing service on Hauff & Warland, omitted in printing.

[fol. 2125] IN UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

[Title omitted]

STIPULATION AND ORDER WAIVING EQUITY RULE 75

It is Hereby Stipulated and Agreed by and between the solicitors for the respective parties hereto, subject to the [fol. 2126] approval of the Court, that the transcript of record on the appeals taken by both parties and involving six patents shall include all of the evidence adduced at the trial in the form of question and answer, in lieu of the condensed statement thereof under Equity Rule 75.

Dated April 2nd, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff-Appellant and Cross-Appellee. Hauff & Warland, Solicitors for Defendant-Appellee and Cross-Appellant.

So Ordered. Manton, United States Circuit Judge.

April 3, 1936.

[fol. 2127] IN UNITED STATES DISTRICT COURT

[Title omitted]

STIPULATION AND ORDER WAIVING BONDS

An Interlocutory Decree having been entered in the above entitled cause on the 23rd day of March, 1936, holding three of the patents in suit valid and infringed as to certain claims thereof and dismissing the defendant's counterclaim and also holding that three of the patents in suit are invalid, and both parties being about to appeal from said Decree, it is hereby stipulated that the furnishing of a bond to secure the cost of the appeal by both sides, be dispensed with.

Dated, New York, March 25th, 1936.

Hauff & Warland, Solicitors for Defendant. Gifford, Scull & Burgess, Solicitors for Plaintiff.

It is Ordered, that the above stipulation be approved.

Dated, Brooklyn, March 26th, 1936.

Marcus B. Campbell, U. S. District Judge.

[fol. 2128] IN UNITED STATES DISTRICT COURT

[Title omitted]

STIPULATION AS TO RECORD

Plaintiff and defendant having appealed in the above entitled cause and said appeals having been allowed, it is hereby stipulated and agreed by and between the solicitors for the respective parties that the following enumerated items shall constitute the transcript of record to be transmitted to the United States Circuit Court of Appeals for the Second Circuit:

1. Bill of Complaint.
2. Answer and counterclaim.
3. Reply to counterclaim.
4. Plaintiff's bill of particulars re claims, December 28, 1934.
5. Defendant's bill of particulars re anticipations, December 31, 1934.
6. Order, January 11, 1935, directing defendant to file bill of particulars.
7. Defendant's bill of particulars, January 18, 1935.
8. Plaintiff's bill of particulars re conception, etc., January 21, 1935.

[fol. 2129] 9. Plaintiff's motion for further particulars, January 26, 1935.

10. Defendant's bill of particulars, February 6, 1935.
11. Notice, May 7, 1935, re state of art references.
12. Stipulation, December 9, 1935.
13. Minutes of trial in question and answer form.
14. Plaintiff's Exhibits to be reproduced:

1. McManus Patent No. 1,339,066. Warth Patent No. 1,899,782. Warth Patent No. 1,899,783. Warth Reissue Patent No. 19,117. Warth Patent No. 1,967,195. Warth Patent No. 1,956,481.

2. Letters dated April 2, April 26 and July 18, 1934, to Ferdinand Gutmann & Co.

3. Stipulation, April 30, 1935, and translations of French patents No. 463,971 and No. 415,794.

13. Some interrogatories directed to defendant and answers thereto.

14. Johnson Patent No. 1,852,578.

15. Cohn Patent No. 1,921,808.

16. Chart of typical machine and procedure for making ordinary crowns.

17. Chart showing how center spot crowns are applied.

21. Chart illustrating Warth method in reissue patent in suit.

22. Another chart showing Warth method.

23. Chart showing method in Johnson and Cohn patents according to stipulation.

[fol. 2130] 29. List showing production by plaintiff of paper center spot crowns from 1928 to 1934.

30. List showing action of one or more typical purchasers from plaintiff from 1925 on.

31. List showing production by plaintiff of natural cork crowns from 1923 on.

32. List showing production by plaintiff of natural cork crowns from 1917 to date.

33. List showing manufacture by plaintiff of all types of spot crowns, metal foil and paper spot.

34. Record of typical users of metal foil spot crowns.

35. Photograph showing Cuban machine of March 1, 1928.

36. Letter dated October 5, 1928, from Johnson to Armstrong Cork Co.

37. Letters dated April 20 and April 24, 1928, between Johnson and Armstrong Cork Co.

38. Sketch by witness Cohn of machine used for producing Inecto caps.

39. Bill by Gutmann to Inecto, dated May 13, 1925.

40. Memorandum accompanying Plaintiff's Exhibit 39.

41. Photograph of machines shown by McManus to Johnson.

42. Photograph of machines shown by McManus to Johnson.

43. Chart made by witness Goebel showing sequence of steps in operation of machine developed under Goebel's supervision.

[fol. 2131] 44. Memorandum signed by W. F. Walker produced by witness Goebel.

45. Photographs accompanying Exhibit 44.

50. Appropriation No. 91,036 to cover money available for three aluminum spots to be applied to crown assembling machines, as per blue prints.

51. Paper dated April 15, 1925, referring to scrapping of three slide machines.

52. Photograph produced by witness Goebel showing machine used for combining two strips in one roll.

53. Appropriation No. 91,092 covering combining machine.

54. Appropriation No. 91,133, to cover building of additional gutta percha combined machine.

55. Copy of letter from Warth to Goebel.

56. Paper signed by Goebel relating to invention of Warth on use of varnished paper for spot crowns.

57. Letters dated June 29 and July 24, 1933, relating to equipment for coating.

58. Letter from Warth to Goebel, dated July 11, 1933.

59. Contract tendered to Crown Cork & Seal Co. by Waldron Co.

60. Telegram dated August 3, 1933, with reference to Exhibit 59.

64. Copy of Keller patent 1,081,505.

67. Letters addressed to Dr. Warth, headed M. Stover, with reference to experiments.

68. Copy of letter signed A. H. Warth, to J. W. Cleveland of du Pont Co. at Parlin, dated May 11, 1932.

[fol. 2132] 69. Letter dated May 9, 1933, from Warth to John Waldron Co.

70. Letter dated May 25, 1933, from Warth to John Waldron Co.

71. Letter dated June 23, 1933, from Warth to Waldron.

72. Memorandum dated July 28, 1933, signed A. H. Warth.

73. Letter dated August 30, 1920, from A. A. Eisenberg to A. H. Warth.

74. Invoice dated April 13, 1927, from Crown Cork & Seal to Burroughs Bros. Co.

75. Letter dated June 30, 1927, from Warth to Burroughs Bros., and similar letter dated July 1, 1927.

76. Two invoices dated August 17 and September 9, 1927, from Crown Cork & Seal Co. to Macomber Orchard Co.

80. Two photographs showing machine as altered within last week by witness Weisenburg.

84. Copy of letter to Gutmann by Crown Cork & Seal Co. offering license, dated March 21, 1933.

85. Certified copy of certain papers from Interference No. 66,201. (Print only the decision of the Examiner of In-

terferences, dated April 14, 1934, the other papers are contained in Defendant's Exhibit YYYY.)

86. Certified copy of certain papers from Interference No. 60,878.

87. Certified copy of File Wrapper and Contents of Johnson patent 1,852,578.

15. Defendant's Exhibits to be reproduced:

[fol. 2133] A. File Wrapper of Warth patent 1,899,783.

B. File Wrapper of application of John Alberti for patent 1,199,026.

E. Affidavit made by Alberti for Crown Cork & Seal Co.

G. Bills dated November 1 and November 20, 1924, to Ferdinand Gutmann & Company by Nagy for dies.

H. Confirmation order of Beechnut Foil Co., dated December 31, 1924, for .0045 pure tin-foil, produced by witness Maculey.

I. Letter from Beechnut Foil Co., dated January 17, 1925, addressed to Ferdinand Gutmann & Co.

J. Confirmation order dated January 19, 1925, from Beechnut Foil Co. to Ferdinand Gutmann & Co., and invoice of January 22, 1925, covering same.

K. Confirmation orders and invoices from Beechnut Foil Co. to Ferdinand Gutmann & Co., from December 31, 1924, to February 21, 1925, five in number.

L. Letters dated January 24 and January 30, 1929, from Reynolds Metal Co.

M. Letter of March 12 from Reynolds Metal Co. to Ferdinand Gutmann & Co.

N. Invoices from Reynolds Metal Co. to Ferdinand Gutmann Co.

O. Letters of February 8 and February 22, 1929, from Reynolds Metal Co. to Ferdinand Gutmann Co.

P. Bill of August 31, 1928, from Johnson to Ferdinand Gutmann & Co.

[fol. 2134] Q. Four bills from September 17, 1928, to April 30, 1929, for assembling machines from Johnson to Gutmann.

R. Four bills from May 16, 1933, to June 19, 1933, from Johnson to Gutmann for machines.

S. Bill dated July 31, 1928, from Johnson to Gutmann for one tin-foil machine with hopper.

T. Orders from Crown Cork & Seal Co. to Johnson, and copies of invoices from Johnson to Crown Cork & Seal Co. for four machines, from March, 1929 to July 3, 1929.

U. Petition to institute public use proceedings filed by Johnson in Interference Proceedings under patent No. 1,852,578.

V. List of machines sold by Johnson like those in patent 1,852,578.

W. Page 19 of Catalog of A. Johnson Machine Works.

X. Bill of Johnson to Gutmann, dated March 18, 1931.

Y. Agreement between Johnson and Crown Cork & Seal Co.

Z. Letter dated December 12, 1933, from Crown Cork & Seal Co. to Johnson.

AA. Assignment from Johnson to Crown Cork & Seal Co.

CC. Invoices dated December 4 and December 11, 1924, from Gutmann to Inecto Co.

DD. Invoice from Gutmann to Inecto, dated January 27, 1925.

EE. Invoice dated February 5, 1925, from Gutmann to Inecto.

[fol. 2135] FF. Invoice dated March 4, 1925, from Gutmann to Inecto.

GG. Invoice dated February 19, 1925, from Gutmann to Inecto.

HH. Letter from Inecto to Gutmann, dated February 4, 1925.

II. Letter from Inecto to Gutmann, dated March 9, 1925.

JJ. Invoice from Gutmann to Inecto, dated March 26, 1925.

KK. Invoice from Gutmann to Inecto, dated March 26, 1925.

LL. Six invoices from Gutmann to Inecto, from March 27, to May 18, 1925.

MM. Copy of letter from Gutmann to Inecto, dated February 19, 1925.

NN. Letter from Bishop Gutta Percha Co. to Gutmann, dated January 6, 1925.

OO. Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 7, 1925.

PP. Invoice from Bishop Gutta Percha Co. to Gutmann, dated December 31, 1924.

QQ. Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 16, 1925.

RR. Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 30, 1925.

SS. Invoice from Bishop Gutta Percha Co. to Gutmann, dated February 11, 1925.

TT. Batch of invoices from Bishop Gutta Percha Co. to Gutmann, from March 23, 1928, to September 27, 1928.

[fol. 2136] UU. Invoice from Peters Bros. to Gutmann, dated April 10, 1929.

VV. Three invoices from Peters Bros. Rubber Co. to Gutmann, dated August 21, September 16 and November 1, 1929.

WW. Three invoices from Peters Bros. Rubber Co. to Gutmann, dated April 21, May 10 and May 15, 1930.

XX. Invoice from Peters Bros. Rubber Co. to Gutmann, dated May 25, 1929.

YY. Three invoices from Peters to Gutmann, dated January 15, April 28 and December 3, 1930.

ZZ. Four invoices from Peters to Gutmann, dated January 6, 1931 to November 1, 1932.

AAA. Two invoices from Peters to Gutmann, dated April 3 and May 15, 1929.

BBB. License agreement between Peters and Crown Cork & Seal Co.

CCC. Certified copy of File Wrapper and contents of patent No. 1,956,481.

DDD. Patent No. 1,956,481 and references set up in defense.

EEE. Certified copy of File Wrapper and contents of patent No. 1,899,782.

FFF. Patent No. 1,899,782 and references set up in defense.

GGG. Certified copy of File Wrapper and contents of reissue patent No. 19,117.

HHH. Reissue patent No. 19,117 and references set up in defense.

III. Certified copy of File Wrapper and contents of patent No. 1,788,260.

[fol. 2137] JJJ. Certified copy of File Wrapper and contents of original application of Warth Serial No. 360,895, referred to in patent No. 1,899,783.

KKK. Patent No. 1,899,783 and references set up in defense.

LLL. Certified copy of File Wrapper and contents in patent No. 1,967,195 to Warth.

MMM. Patent No. 1,967,195 and references set up in defense.

NNN. Invoice from Gutmann to Goetz Brewing Co., dated August 14, 1928.

OOO. Credit memorandum dated October 2, 1928, from Gutmann to Goetz.

PPP. Invoice dated August 23, from Gutmann to Goetz.

QQQ. Invoice from Gutmann to Goetz, dated August 31, 1928.

RRR. Invoice dated September 21, 1928, from Gutmann to Goetz.

SSS. Invoice dated October 26, 1928, from Gutmann to Goetz.

TTT. Bundle of Invoices from Gutmann to Goetz.

VVV. Two letters dated August 22 and August 23, 1928.

WWW. Letter from du Pont to Gutmann, dated May 12, 1932.

XXX. Tabulation of gross shipments of crowns made by Gutmann Co. from 1928 to 1934.

ZZZ. Letter from Crown Cork & Seal Co. to Gutmann, dated December 10, 1928, with attached acknowledgment.

[fol. 2138] CCCC. Paper showing test of pressure of plunger with springs, by Cohn.

DDDD. Two papers covering 100 gross each of crowns with paper spot centers produced by witness Fries.

EEEE. Nine orders from Crown Cap Mfg. Co., dated March 28, 1930, to October 2, 1930, including two without dates, to Ferdinand Gutmann Co. for placing spots on crowns.

FFFF. Letter from Crown Cap Mfg. Co. to Gutmann, dated April 23, 1929.

GGGG. Invoices on stationery of Crown Cork & Seal Co. from June 1 to November 30, 1917.

HHHH. Invoice for inserting spots in 600 gross of caps.

IIII. Invoices from Crown Cork & Seal Co. to Kalak Water Co., July 23, 1920 and August 31, 1920.

JJJJ. Three invoices from Gutmann dated Dec. 16, 1918, July 16 and February 1, 1919, to Kalak Co.

LLLL. Report by Schwarz Laboratories of test on caps secured with center spots using 4620 adhesive for Gutmann.

MMMM. Bill from du Pont Co. to Gutmann, dated April 4, 1933.

OOOO. Original interrogatories to plaintiff and plaintiff's answers to same.

PPPP. Letter from plaintiff to defendant, dated October 13 and letter from defendant to plaintiff, dated October 10, and defendant's reply of October 14.

[fol. 2139] RRRR. Certified copy of preliminary statement of Albin H. Warth in Interference No. 60,931.

SSSS. Affidavit of John J. Darby, dated May 20, 1932.

UUUU. License agreement between Crown Cork & Seal Co. and Lange.

VVVV. Portion of order of U. S. Court for Southern District of New York, recorded on January 31, 1934, in Crown Cork & Seal Co. vs. Pennie, Davis, Marvin & Edmonds.

XXXX. Advertisement in "Spot Crowns" of plaintiff, dated July, 1933.

YYYY. Record of Interference 66,201.

ZZZZ. Patent No. 1,339,066 and references set up in defense.

AAAAA. Certified copy of File Wrapper and contents of application of Albin H. Warth, Serial No. 494,201.

BBBBB. Certified copy of abandoned application of Albin H. Warth, filed August 21, 1926, Serial No. 130,631.

DDDDD. Affidavit of John J. Darby of April 2, 1934, in Interference No. 66,201.

EEEEE. Preliminary statement of Johnson in Interference No. 66,201.

HHHHH. Page 5 of "Beverage Journal," dated June, 1930.

16. Plaintiff's Exhibits to be transmitted as physical exhibits:

4. Cap referred to as "A" in stipulation (Exhibit No. 3).

[fol. 2140] 5. Cap referred to as "B" in stipulation (Exhibit No. 3).

6. Cap referred to as "C" in stipulation (Exhibit No. 3).

7. Cap referred to as "D" in stipulation (Exhibit No. 3).

8. Cap referred to as "F" in stipulation (Exhibit No. 3).

9. Strip of foil marked "G" in stipulation (Exhibit No. 3).

10. Strip of foil marked "H" in stipulation (Exhibit No. 3).

11. Strip of foil marked "I" in stipulation (Exhibit No. 3).

12. Paper strip marked "J" in stipulation (Exhibit No. 3).

18. Batch of laminated material referred to by witness Weisenburg.

19. Box of crown caps.

20. Box of so-called White Rock caps.

28. Box containing so-called Rao and glazed paper spot caps manufactured by plaintiff.

46. Machine demonstrated in court by witness Goebel.

47. Blue prints produced by witness Goebel showing changes made in Goebel crown assembler.

48. Typical drawings of preheater mechanism on same machine.

49. Group of drawings with reference to post-heater of plunger following punch on same machine.

61. Strip of material identified by Goebel as such as was made in 1915 and 1916 by Crown Cork & Seal Co.

[fol. 2141] 62. Cap identified by Goebel as made from material of Exhibit 61.

63. Original drawings of blue prints marked Plaintiff's Exhibits 47, 48 and 49.

65. Paper spot crowns tested by Cliquot, three in number.

66. Caps given to Mr. Darby by Mr. Warth on February 12, 1932, and papers accompanying same.

77. Roll of tin-foil coated with surgical tissue interlined with wax paper.

78. Envelope containing spot crowns made by Stover in laboratory with thermoplastic cement prior to January 20, 1932.

79. Box of caps with center spot crowns made of Stewart or Nielson method.

81. Bag of regular production natural cork paper backed crowns, dated November 14, 1933, produced by witness Weisenburg.

82. Package of spots produced by witness Weisenburg, having been produced on recently altered machine.

83. Bag of center spot crowns produced by witness Weisenburg, made within last week at Baltimore.

17. Defendant's exhibits to be transmitted as physical exhibits:

C. Three corks attached to Alberti affidavit, made under Rule 75, in the Patent Office.

[fol. 2142] D. Caps attached to McManus affidavit on file in Patent Office.

F. Strip produced by witness Magy showing gum paper sticking to cork disc.

BB. Cap with letter B on back, purchased by Evans from Gutmann.

UUU. Circular put out by defendant Gutmann.

YYY. Circular of Crown Cork & Seal Co. entitled "Spot Crowns."

AAAA. Factory record slip of Gutmann.

BBBB. Factory record slip from Gutmann for shipments to Wm. Gerst Brewing Co.

KKKK. Type of crown run by Gutmann in August, 1933, when Mr. Fusting and Mr. Darby called.

NNNN. Original can received April 4, 1933.

QQQQ. Cap with B on back, of size made by Gutmann for Inecto.

TTTT. Testimony in Interference No. 60,931.

WWWW. Testimony in Interference between Johnson and Warth.

CCCCC. Photostatic copy of du Pont magazine article, page 60, June and July, 1932.

FFFFF. Cap shown to Mr. Reed, to which he secured a strip of foil with surgical gutta percha.

GGGGG. Letters of January 6 and February 4, 1935, from Standard Crown Co. to Gutmann.

[fol. 2143] 18. Opinion.

19. Stipulation as to findings of fact and conclusions of law.

20. Interlocutory decree.

21. Petition for appeal by defendant.

22. Order allowing defendant's appeal.

23. Assignment of errors by defendant.

24. Citation to plaintiff.

25. Petition for appeal by plaintiff.

26. Order allowing plaintiff's appeal.

27. Assignment of errors by plaintiff.

28. Citation to defendant.

29. Stipulation waiving appeal bonds.

30. Stipulated praecipe and order.

31. Stipulation and order approving statement of evidence.

32. Stipulation and order waiving reduction of testimony to narrative form.

33. Stipulation and order re entire printed record.
34. Clerk's certificate.

It is stipulated and agreed that the title to McManus patent No. 1,339,066 is vested in the plaintiff, Crown Cork & Seal Company, Inc., and that, therefore, plaintiff's exhibits Nos. 24, 25, 26 and 27 may be eliminated from the case.

May 18, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

Order Allowing Praecipe.

It Is so Ordered: Marcus B. Campbell, U. S. District Judge.

[fol. 2144] In United States District Court

[Title omitted]

Stipulation as to Record

It is hereby stipulated and agreed, that the foregoing (in 3 vols.) is a true copy of the transcript of the record of the said District Court in the above-entitled matter as agreed on by the parties.

Dated, June —, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

On reading the foregoing consent of the solicitors for the respective parties herein, It is Ordered that the foregoing printed record be filed in lieu of the original papers for the purpose of certifying a record on appeal.

Dated, June —, 1936.

——, U. S. D. J.

[fol. 2145] Clerk's certificate to foregoing transcript omitted in printing.

BLANK

PAGE

[fol. 2146] UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT, OCTOBER TERM, 1936

Argued Oct. 6, 1936. Decided Dec. 14, 1936

No. 89

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant and Appellee,

v.

FERDINAND GUTMANN & COMPANY, Defendant-Appellant and Appellee

Appeal from the District Court of the United States for the Eastern District of New York

Before Manton, L. Hand, and Swan, Circuit Judges

Suit in equity by Crown Cork & Seal Company, Inc., charging infringement of six patents, and counterclaim by the defendant charging infringement of a patent owned by it. From a decree which held three of the plaintiff's patents valid and infringed, dismissed the complaint as to the others, and also dismissed the counterclaim, both parties have appealed. Decree modified.

For the opinion below, see (D. C.) 14 F. Supp. 255.

Gifford, Scull & Burgess, of New York City (George F. Scull, of New York City, and John J. Darby, of Washington, D. C., of counsel), for plaintiff.

Hauff & Warland, of New York City (William E. Warland and Francis H. Warland, both of New York City, of counsel), for defendant.

SWAN, Circuit Judge:

The patents in suit relate to a type of bottle closure known as a "spot crown cap" and to methods of making such caps. The plaintiff has appealed in respect to Warth patents No. 1,899,783 (claim 4) and No. 1,956,481 (claims 6 and 16), which were held invalid.[1] McManus patent No. 1,339,066 (claims 3 and 8) and Warth patents reissue 19,117

[1] Warth patent No. 1,899,762 (claims 7 and 9) was also held invalid, but no appeal has been taken as to this.

(claims 1 and 3) and No. 1,967,195 (claims 1, 2 and 3) were held valid and infringed, and as to these the defendant has appealed. The defendant has also appealed from dismissal of its counterclaim for noninfringement of Cohn patent No. 1,921,808.

Long prior to the patents in suit the bottling art was familiar with crown caps which had no center spot. Such caps were formed of a thin metal shell, containing a cushion disc of natural cork or composition cork adapted to seal the mouth of the bottle when the cap was pressed into engagement with its lip. There were disadvantages, however, in having the contents of the bottle come into contact with the cork disc. Consequently the practice developed of applying to the face of the cork disc a thin sheet of material, such as tin foil or glazed paper, impermeable to the liquid contents of the bottle. This may take the form of an "overall" facing, or of a partial or "spot" facing. In the "overall," the protective foil or paper covers the entire face of the cushion disc. Such a form of crown cap is satisfactory when the contents of the bottle are not under gas pressure, but is likely to result in leakage in the case of pressure beverages. In spot crown caps the protective facing of the cork cushion is a "spot" or disc of such diameter as to extend only part way over the lip of the bottle and permit the rest of the lip to make contact with the cork cushion, thus forming a more perfect seal and at the same time [fol. 2147] preventing the liquid from touching the cork. The chief difficulty in the manufacture of such caps has been in affixing the spot to the cork disc. It must be accurately centered and firmly attached. From 1914 the White Rock Company has used a tin foil spot which is mechanically attached to the cork disc. The patents in suit, however, relate to spots which are adhesively attached by a "fusible binder"; that is, the adhesive must be one which is softened and made sticky by heat, as distinguished from one which has to be moistened to be applied. For the commercial success of spot crown caps it is essential that they be manufactured cheaply and this involves rapidity of assemblage. Operating under the patents in suit the plaintiff applies spots to crowns at the rate of 500 per minute for each operating unit and is able to sell the entire cap at a price of about six for one cent. Its sales amount to about 9 million gross per year.

1. With this brief preliminary exposition we may turn to the patents in suit, of which the first is McManus patent No. 1,339,066, granted May 4, 1920, upon an application filed November 17, 1915. Claims 3 and 8 were in suit and were held valid and infringed. This patent describes and claims a center spot crown cap as an article of manufacture, and the claims in suit require that the spot be united with the cork or composition cushion disc "by means of a fusible binding medium." The specifications explain that crown caps without the center spot were old and were subject to disadvantages because the liquid came into contact with the cork or cork-composition disc. Apparently McManus conceived that his inventive thought was the idea of overcoming these objections by adding the center spot. He was not, however, the originator of spot crown caps. As already noted, the White Rock Company began in 1914 to use mechanically attached spots. DeMuth's British patent No. 16075, issued in July, 1914, upon an application dated July 12, 1913, shows a liquid-resisting spot secured to the cork disc "by cementing or in any other appropriate manner." The United States patent No. 1,199,026 issued in 1918 to Alberti, whose application was dated October 3, 1914, also discloses a spot cemented to the cork disc. Alberti used a moist cement, albumen, which was coagulated and caused to stick by the subsequent application of heat and pressure. Concededly the only new feature, if any, which McManus added was the use of a "fusible binding medium" instead of a moist adhesive. As he points out, a fusible binder between the tin cap and cork cushion was already old, and preferably he specifies the same binding material to attach the spot. Moreover, the Koch patent No. 1,238,156, issued in 1917 on an application filed September 21, 1915, shows a fusible binder, gutta percha, as the medium for attaching the "overall" type of spot. Thus McManus is reduced to the proposition that, although heat fusible adhesives were old for securing discs to caps, and "overalls" to discs, his was the first disclosure with respect to fastening a center spot by such an adhesive. It is impossible to believe that it required ingenuity worthy of the name of invention to take the step of using upon the "spot" the same adhesive used upon the "overall" coating. Nor was this idea immediately seized upon as the solution of an existing problem. Rather the problem, as the history of the development of the industry shows, was to perfect a

machine that would operate with sufficient accuracy and speed to render manufacture commercially successful. McManus himself, though attempting to manufacture spot crown caps, did not utilize commercially the idea of a fusible binder until about 1926. Our conclusion is that claims 3 and 8 are invalid for lack of invention.

2. Warth "Paper Spot" patent No. 1,899,783. This was granted February 28, 1933 on a divisional application filed October 31, 1930, of a parent application filed May 5, 1929. Only claim 4 was in suit; it was held invalid. This claim calls for a crown cap with a center spot "of hard, high-gloss paper having a varnished outer surface" and fastened to the cushion by gutta percha. For high pressure, acidulated beverages, such as ginger ale, tin foil spots were not suitable, because the acid would eat through the foil, thus permitting the beverage to acquire a corky taste and to lose pressure through the pores of the cork or composition cushion. The object of the patent was to avoid the ill effects of the use of tin foil. The only "problem" was to select a facing for the cushion which would withstand the attack of acidulated liquids and be not too thick to bend when pressure was applied in closing the cap [fol. 2148] upon the bottle. A paper facing, varnished to prevent absorption, was old in the art. Smith's patent No. 983,319, of 1911, discloses the use of a varnished manila paper for an "overall" cap-facing. The McManus patent already discussed recommended for the "spot" facing "a hard parchment paper, or any other paper so treated as to make it non-absorbent." The Lange patent No. 1,657,802, issued in 1928, application filed December 16, 1924, used a varnished paper to make a cover for preserve jars and the like. Warth testified that it took experimentation over a considerable period of time to select a paper of the right toughness, density and thinness and a varnish which would impart no flavor to the bottled beverage, but with this prior art we can see no room for invention in what he did, and we agree with the District Court that claim 4 of the Warth paper spot patent shows no novelty or invention and is invalid.

3. Warth patent No. 1,956,481, granted April 24, 1934, application filed June 16, 1933. Claims 6 and 16 were in suit and were held invalid. These claims call for a spot crown cap in which the spot is stuck to the cushion by a

thermoplastic adhesive composed of nitrocellulose and a resin, which is a better adhesive than the conventional gutta percha. Both the plaintiff and the defendant use as an adhesive a preparation manufactured and sold by the du Pont Company under the name "4620." This came on the market in 1932, and became the medium adopted by both litigants, the defendant's commercial use having started in June or July, 1933, and the plaintiff's about one year later. Concededly it is an anticipation of the patent in suit, unless Warth can carry back his date of invention and reduction to practice. This he attempts to do, contending that his date of conception was the fall of 1926 and his reduction to practice at least as early as January, 1932. It is doubtless true that Warth was experimenting in 1926 with nitrocellulose, but he plainly had not then reached the goal, for, according to his own testimony, the mixture he had achieved "was not as good as gutta percha." Not until 1930 did Warth tell McManus of the possibility of using a nitrocellulose-resin cement, and he had not then worked out any formula for the mixture. About a year later McManus asked Weisenberg to work on the idea, without telling him of Warth's previous attempts to find the right mixture. Then in January, 1932, the du Pont Company delivered to the plaintiff a can of "4620" to be tried out as an adhesive for spot crown caps. Warth instructed his secretary to see if it would work, saying, "That is something I have been trying to find, as you know, for a long time." It is possible that Warth had given some ideas to the du Ponts, but it seems plain that they and not he worked them out. The above-quoted statement to Warth's secretary is wholly inconsistent with the contention that "4620" was his own work. So also are the fact that he made an affidavit in December, 1932, speaking of gutta percha as the best of the known adhesives, and the fact that between the fall of 1926 and October 30, 1930, he filed no less than five patent applications, each of which sang the praises of gutta percha and made no mention of nitrocellulose and resin. Under the severe rules applicable to carrying back the date of an invention, Warth has failed to carry the burden of doing so, and we hold that patent No. 1,956,481 was anticipated by "4620."

4. Warth Reissue No. 19,117 dated March 20, 1934. This is a reissue of patent No. 1,788,260 which was applied for

January 7, 1927, and granted January 6, 1931. Application for reissue was filed January 23, 1934. Claims 1 and 3 were in suit and were held valid and infringed. These are process claims for a method of manufacturing spot crown caps. The "spot" material is in the form of a strip of tin foil or liquid-resisting paper, coated on the under side with a thermoplastic adhesive. The patent requires drawing the strip over a die and under a punch, cutting the spot from the strip by the punch, which positions the spot upon the cork disc, "and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere" to the cork disc, and then permitting the adhesive to cool and harden. Claim 3 merely adds that the cooling step shall occur "while subjecting the assembled unit to pressure." It is contended by the defendant that, if the claims can be sustained as valid at all, they must be limited to mean that the heat and pressure are applied by the cutting punch; and, if so lim- [fol. 2149] ited, the defendant does not infringe, for the defendant uses a cold cutting punch [2] which positions the spot on a cork disc previously heated sufficiently to cause the spot to adhere while the cap is carried to the next stage, where a hot plunger applies heat and pressure. We think this contention is well taken.

The parent application originally contained a paragraph which disclosed the preheating step and had claims sufficiently broad to cover it, but on December 3, 1930, the preheating passage was stricken from the specifications, all claims were canceled, and the present first claim was substituted. That left the specifications with the statement that the preferred method of applying the spot material to the cap is "to utilize, at the time of assembly, both heat and pressure," and that "the punch 20 may be maintained at an elevated temperature, as by means of a burrer 23," and left the claim, in so far as it referred to heating, as follows: "And upon assembly applying simultaneously to the spot

[2] Although we refer to the cutting punch as "cold," it actually gets heat by radiation from the adjacent "preheater" and "post heater" plungers so that its temperature may be as high as 140° F., but this is not enough to make the adhesive sufficiently tacky to adhere to the cork unless the latter has been preheated.

pressure and sufficient heat'' to cause the spot to adhere. This was the form in which the patent was granted. It clearly means *applying* the heat at the time of pressure, not pressure by a cold punch on an already heated crown. Further considerations lead to the same conclusion, namely that the claims require the heat and pressure to be applied by the cutting punch. In the plaintiff's ''slide machine,'' which goes back to 1917, a strip of spot material and a strip of adhesive (gutta percha) were drawn beneath the punch which descended to cut the spot and deposit it upon a slide member, which then passed under a heated plunger with a suction device which sucked up the spot and held it until a cap containing the cork disc passed beneath, when the plunger descended, pressing the spot upon the cork. While the mechanism of the slide machine is quite different from that of the machine by which Warth's process is applied, it must be remembered that his patent is not for the machine but for a method of manufacture involving cutting the spot and causing it to adhere to the cork disc by the application of heat and pressure. To read the claims of the reissue patent to mean a cold punch to cut the spot and a hot plunger applied later to fasten it to the cork disc would make them invalid under the old ''slide machine.'' To read them to mean a cold punch which positions the spot upon a preheated cork would be inconsistent with the fact that the preheating specification was deliberately divided out and later claimed in Warth's ''preheating patent'' hereafter to be discussed. Consequently we conclude that the defendant's method of manufacture does not infringe claims 1 and 3 of reissue No. 19,117.

5. Warth ''preheating'' patent No. 1,967,195. This was granted July 17, 1934, upon a divisional application filed April 4, 1933. Claims 1, 2, and 3 are in suit and were held valid and infringed. They are process claims for the preheating method already referred to. The cork disc in the cap is heated before it passes under the cutting punch which positions the spot on the cork. The heat of the cork makes the adhesive of the spot tacky, so that the pressure of the cutting punch causes it to adhere. At the next step a heated plunger is pressed down on the spot; then it is passed under a cold plunger and kept under pressure until the adhesive has cooled. Each of the claims in suit calls for ''heating the pads in the caps''; that is, for preheating

of the cork disc before the spot is positioned upon it. This is the feature which distinguishes the patent from the prior reissue. It is the process used by both the plaintiff and the defendant. The defendant infringes, if the claims are valid. We think they are invalid for laches in filing the application for them. Webster Co. v. Splitdorf Co., 264 U. S. 463, 44 S. Ct. 342, 68 L. Ed. 792.

The parties are in dispute as to the effective date of application for the claims in suit, the defendant contending for the day the claims were actually filed, namely, April 4, 1933, and the plaintiff for the date of the parent application, namely, January 7, 1927. As already explained, the reference to preheating in the parent application was [fol. 2150] stricken out on December 3, 1930. Previously, on November 7, 1930, Warth had filed a divisional application No. 494,201 to which he had transferred the preheating method; it claimed only the spot material strip as an article of manufacture. As we have previously shown, Warth's patents No. 1,788,260 and reissue 19,117 contained no claims broad enough to cover preheating. Hence there was no claim for the preheating method on file in the Patent Office from December 3, 1930, until April 4, 1933, when Warth applied by his second divisional application for the preheating patent. The disclosure, however, had been continuously on file since January 7, 1927; and so the plaintiff contends that it is entitled to that filing date. We do not so understand the law, as laid down in Webster Co. v. Splitdorf Co., 264 U. S. 463, 471, 44 S. Ct. 342, 344, 68 L. Ed. 792. Prima facie the two-year time limit applies to divisional applications, and an applicant who waits longer before claiming the invention disclosed in his application must justify his delay by proof of some excuse. No such excuse appears here. Had Warth chosen to retain in his parent application broad generic claims which might cover the preheating method, then indeed the Splitdorf rule might not be applicable. Carson v. American Smelting & Refining Co., 4 F. (2d) 463, 470 (C. C. A. 9). The delay would be excused since a patentee is not to be held at fault for failure to have divided his claims at an earlier date, merely because he might have, when instead he had elected to prosecute the broader claims of his original application. Hartford-Empire Co. v. Nivison-Weiskopf Co., 58 F. (2d)

701 (C. C. A. 6). But, in the case at bar, for a period of more than two years Warth apparently did not wish to claim the preheating method, having deliberately canceled the preheating specification from his original application and shaped his claims so as to exclude it and his patent having been granted January 6, 1931. He made no claim for preheating until more than two years thereafter, namely, April 4, 1933. In the meantime a patent containing claims for the preheating method had been granted to Johnson on April 5, 1932, and it was Warth's discovery of this fact which stirred him to action. As in the Splitdorf Case, had it not been for this competitor, Warth might never have considered the subject worth claiming as an invention. These circumstances invite operation of the two-year limitation designed to protect the public against obtaining in effect an extension of a patentee's monopoly by apathy and unexcused delay in bringing forward by divisional or reissue applications claims broader than those originally sought. See Westinghouse Electric & Mfg. Co. v. Jeffrey-DeWitt Insulator Co., 22 F. (2d) 277 (C. C. A. 2). Wagenhorst v. Hydraulic Steel Co., 27 F. (2d) 27, 29 (C. C. A. 6); Otis Elevator Co. v. Atlantic Elevator Co., 47 F. (2d) 545, 549 (C. C. A. 2); Wirebounds Patents Co. v. Saranac Automatic Machine Corp., 65 F. (2d) 904 (C. C. A. 6); compare Phelan v. Green, 71 F. (2d) 298, 301 (Cust. & Pat. App.).

6. By counterclaim the defendant charged infringement of patent No. 1,921,808 to Cohn. The counterclaim was dismissed on the ground of noninfringement. This was plainly right; the plaintiff had neither infringed nor threatened to do so.

For the reasons stated in the foregoing opinion, the plaintiff should have been denied relief upon all its patents. The interlocutory decree is modified, and the cause remanded, with directions to dismiss the bill of complaint.

[fol. 2151] UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT, OCTOBER TERM, 1936

Argued Oct. 6, 1936. Decided Dec. 14, 1936

No. 89

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant and Appellee,

v.

FERDINAND GUTMANN & COMPANY, Defendant-Appellant and Appellee

Appeal from the District Court of the United States for the Eastern District of New York

Before Manton, L. Hand, and Swan, Circuit Judges

MANTON, Circuit Judge (dissenting):

The District Judge entered a decree for the plaintiff holding the McManus patent No. 1,339,066, Warth patents reissue No. 19,117 and No. 1,967,195 valid and infringed. He dismissed the complaint on the merits as to the Warth patents No. 1,899,782, No. 1,899,783, and No. 1,956,481. I agree with his reasons and conclusions which are fully and ably stated in Crown Cork & Seal Co. v. Gutman & Co. (D. C.), 14 F. Supp. 255.

I accordingly dissent from the modification of the decree.

[fol. 2152] UNITED STATES CIRCUIT COURT OF APPEALS, SECOND CIRCUIT

At a Stated Term of the United States Circuit Court of Appeals, in and for the Second Circuit, held at the United States Court House, in the City of New York, on the 21st day of December, one thousand nine hundred and thirty-six.

Present: Hon. Martin T. Manton, Hon. Learned Hand, Hon. Thomas W. Swan, Circuit Judges.

2156

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant,

vs.

FERDINAND GUTMANN & COMPANY, Defendant-Appellant

Appeal from the District Court of the United States for the Eastern District of New York

This cause came on to be heard on the transcript of record from the District Court of the United States for the Eastern District of New York, and was argued by counsel.

On Consideration Whereof, it is now hereby ordered, adjudged, and decreed that the Decree of said District Court be and it hereby is modified with costs to the defendant and cause remanded with directions to dismiss the bill of complaint.

It is further ordered that a mandate issue to the said District Court in accordance with this decree.

Wm. Parkin, Clerk.

[fols. 2153-2170] [Endorsed:] United States Circuit Court of Appeals, Second Circuit. Crown Cork & Seal Company, Inc., vs. Ferdinand Gutmann & Company. Order for mandate. United States Circuit Court of Appeals, Second Circuit. Filed Dec. 21, 1936. William Parkin, Clerk.

[fol. 2171] UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant and Appellee,

against

FERDINAND GUTMANN & COMPANY, Defendant-Appellant and Appellee

Before Manton, L. Hand and Swan, Circuit Judges

Gifford, Scull & Burgess, Esqs., Solicitors for Plaintiff. George F. Scull, John J. Darby, of Counsel.

Per CURIAM:

Petition for rehearing denied.

——, Circuit Judges.

Filed January 22, 1937.

[fol. 2172] UNITED STATES CIRCUIT COURT OF APPEALS,
SECOND CIRCUIT

At a stated term of the United States Circuit Court of Appeals, in and for the Second Circuit, held at the United States Court House, in the City of New York, on the 22nd day of January, one thousand nine hundred and thirty-seven.

Present: Hon. Martin T. Manton, Hon. Learned Hand, Hon. Thomas W. Swan, Circuit Judges.

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant,

vs.

FERDINAND GUTMANN & COMPANY, Defendant-Appellant

A petition for a rehearing having been filed herein by counsel for the Plaintiff;

Upon consideration thereof, it is

Ordered that said petition be and hereby is denied.

Wm. Parkin, Clerk.

[fol. 2173] [Endorsed:] United States Circuit Court of Appeals, Second Circuit. Crown Cork & Seal Company, Inc., vs. Ferdinand Gutmann & Company. Order. United States Circuit Court of Appeals, Second Circuit. Filed Jan. 22, 1937. William Parkin, Clerk.

[fol. 2174] UNITED STATES OF AMERICA,
Southern District of New York:

I, William Parkin, Clerk of the United States Circuit Court of Appeals for the Second Circuit, do hereby certify that the foregoing pages, numbered from 1 to 2173, inclusive, in 3 volumes, contain a true and complete transcript of the record and proceedings had in said Court, in the case of Crown Cork & Seal Company, Inc., Plaintiff-Appellant, against Ferdinand Gutmann & Company, Defendant-Appellant, as the same remain of record and on file in my office.

In Testimony Whereof, I have caused the seal of the said Court to be hereunto affixed, at the City of New York, in the Southern District of New York, in the Second Circuit, this eighteenth day of February, in the year of our Lord one thousand nine hundred and thirty-seven, and of the Independence of the said United States the one hundred and sixty-first.

Wm. Parkin, Clerk. (Seal United States Circuit Court of Appeals, Second Circuit.)

(8773-C)

BLANK

PAGE

2159

SUPREME COURT OF THE UNITED STATES, OCTOBER TERM, 1936

No. —

CROWN CORK & SEAL COMPANY, INC., Petitioner,

vs.

FERDINAND GUTMANN & CO., INC.

ORDER EXTENDING TIME WITHIN WHICH TO APPLY FOR WRIT OF CERTIORARI

On consideration of the motion of counsel for petitioner in the above entitled cause, and good cause therefor having been shown,

It Is Ordered that the time within which petition for writ of certiorari may be filed herein be, and the same is hereby, extended for a period of 30 days from April 22, 1937.

Harlan F. Stone, Associate Justice of the Supreme Court of the United States.

Dated this 8th day of April, 1937.

[fol. 2176] SUPREME COURT OF THE UNITED STATES

ORDER ALLOWING CERTIORARI—Filed October 11, 1937.

The petition herein for a writ of certiorari to the United States Circuit Court of Appeals for the Second Circuit is granted. And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

Mr. Justice Black took no part in the consideration and decision of this application.

Endorsed on cover: File No. 41,548. U. S. Circuit Court of Appeals, Second Circuit. Term No. 72. Crown Cork & Seal Company, Inc., petitioner, vs. Ferdinand Gutmann Co., Inc. Petition for a writ of certiorari and exhibit thereto. Filed May 20, 1937. Term No. 72, O. T., 1937.

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S.
FILED
MAY 20 1937
CHARLES ELMORE CROPLEY
CLERK

Pat. 166. 85796 M. & S. C.

IN THE

Supreme Court of the United States

OCTOBER TERM, 1936.

No. [redacted] 72

CROWN CORK & SEAL COMPANY, INC., *Petitioner,*

v.

FERDINAND GUTMANN CO., INC., *Respondent.*

PETITION FOR A WRIT OF CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT AND BRIEF IN SUPPORT OF PETITION FOR WRIT OF CERTIORARI.

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Petitioner.

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

BLANK

PAGE

TABLE OF CONTENTS.

	Page
PETITION FOR WRIT OF CERTIORARI	1
Summary and Short Statement	2
Decision of Circuit Court of Appeals	3
Conflict between Circuit Court of Appeals in case at bar and other Circuit Courts of Appeals	4
The Questions Presented	9
Public Importance of Questions Raised	9
Reasons Relied On For The Allowance of The Writ	12
BRIEF IN SUPPORT OF PETITION	15
Opinions of Courts Below	15
Jurisdiction	15
Statement of the Case	15
Specification of Errors	15
ARGUMENT	16
I. The Circuit Court of Appeals for the Second Circuit has extended the doctrine of *Webster* v. *Splitdorf* beyond any thing justified by that or any other decision of this Court	16
II. There is an irreconcilable conflict between the Circuit Courts of Appeals for the Second, First, Sixth and Eighth circuits as to the applicability of *Webster* v. *Splitdorf* to a case where claims have been inserted in a divisional application more than two years after the filing of the parent application but less than two years after there was an intervening public use, patent or publication	20
III. There is a further irreconcilable conflict between the Circuit Courts of Appeals for the Second and Sixth Circuits as to what constitutes valid excuse for delay in presentation of claims in a divisional application	26

Page

IV. The questions involved are of vital public importance 28

CONCLUSION 30

APPENDIX 31

TABLE OF CASES CITED.

Altoona v. *American Tri-Ergon*, 294 U. S. 477, 487 ... 8*, 26
Chapman v. *Wintroath*, 252 U. S. 135 ..... 3*, 16, 20
Dubilier Condensor Corporation v. *Radio Corporation of America*, 34 F. (2d) 450, 462 (D. C. Del.) 24
Hartford-Empire Company v. *O'Bear-Nester Glass Co.*, 39 F. (2d) 769 (C. C. A. 8th) 6, 12
MacLaren v. *Stoetzel*, 38 F. (2d) 125, 129 (C. C. P. A.) 8, 28
McGrath v. *Burke*, 12 F. (2d) 161, 162 (Court of Appeals, D. C.) 8, 28
United States v. *American Bell Telephone Co.*, 167 U. S. 224, 247 ..... 6, 19
Utah Radio Corp. Products v. *Boudette*, 78 F. (2d) 793 (C. C. A. 1st) 5, 12, 21
Wagenhorst v. *Hydraulic Steel Co.*, 27 F. (2d) 27 (C. C. A. 6th) 5, 12, 18, 22
Webster Co. v. *Splitdorf Co.*, 264 U. S. 463 ..... 4, 12, 16
Wirebounds Patents Co. et al. v. *Saranac*, 37 F. (2d) 830 (C. C. A. 6th) 5, 12, 19*, 23

STATUTE CITED.

U. S. C., title 35, sec. 31 ..... 5*, 11

---

*Footnote.

IN THE

Supreme Court of the United States

OCTOBER TERM, 1936.

No. ——

CROWN CORK & SEAL COMPANY, INC., *Petitioner*,

v.

FERDINAND GUTMANN CO., INC., *Respondent*.

PETITION FOR A WRIT OF CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT.

TO THE HONORABLE CHIEF JUSTICE AND ASSOCIATE JUSTICES OF THE SUPREME COURT OF THE UNITED STATES:

Your petitioner, Crown Cork & Seal Company, Inc., plaintiff, respectfully prays for a writ of certiorari to the Circuit Court of Appeals for the Second Circuit to review a judgment of that court rendered on January 22, 1937.

SUMMARY AND SHORT STATEMENT.

This action was brought by petitioner to enjoin infringement of two* Letters Patent, namely, Warth Reissue No. 19,117, dated March 20, 1934 (R., p. 711), hereinafter identified as the "parent" patent, and Warth patent No. 1,967,195, dated July 17, 1934 (R., p. 716), hereinafter identified as the "divisional" patent. The patents cover methods for applying a small disc of foil or paper, known as a "center spot", to the cork cushion discs of crown caps used for sealing high pressure beverages, such as beer and ginger ale. The center spot serves to protect the cork cushion from the sealed liquid in the manner illustrated in the sketch appended to the brief.

The District Court for the Eastern District of New York (Campbell, J.,) found both patents valid and infringed, 14 F. Supp. 255 (R., pp. 2047, 2072; decree p. 2107). The Circuit Court of Appeals for the Second Circuit (Manton, J., dissenting) reversed the decree, holding (R., pp. 2146, 2150) that the parent patent was not infringed and that the divisional patent was invalid because of laches in filing the application. The opinion of the Court of Appeals is reported at 86 F. (2d) 698.

The application for the parent patent was filed on January 7, 1927 (R., p. 1485) and matured into patent No. 1,788,260, dated January 6, 1931. Before the issuance of the parent patent, a second application had been filed (R., p. 1948) with the same disclosure. While the second application was pending, a patent to one Johnson, No. 1,852,578, issued on April 5, 1932 with claims covering specific subject-matter *disclosed* in the Warth original and second applications, but not then *claimed* in the pending second application. From the second application, Warth carved a divisional application, which resulted in the divisional patent in suit, and copied therein the claims of the Johnson

*Three other patents before the Court of Appeals are not involved in this petition.

patent* two years and four months after the parent Warth patent had issued. There is no issue here as to the propriety of filing the division instead of inserting the claims by amendment in the then pending second application.

In an interference with this Johnson patent, the Patent Office held the Warth divisional application entitled to the filing date of the parent Warth patent. This was in accord with the practice of the Patent Office for the past fifty years, as approved by this Court in *Chapman v. Wintroath* (252 U. S. 135). The claims of the Johnson patent were accordingly awarded to Warth as the prior inventor and are now the claims of the Warth divisional patent here in suit.

There had been no adverse public use or printed publication or other intervening right for more than two years before these claims were asserted by Warth in his divisional application.**

Decision of Circuit Court of Appeals

The Circuit Court of Appeals overruled the holding of the Patent Office, which followed its practice of over fifty years, and the holding of the District Court (R., p. 2101)

*Johnson is not involved in this suit. The Johnson patent claims were copied within a year after the patent had issued and therefore within the two years allowed by *Chapman* v. *Wintroath,* 252 U. S. 135.

**The Court of Appeals referred to the issuance of the Warth parent patent more than two years before the divisional patent claims were asserted, but the patent contained no description of the method of the Warth divisional patent and hence was not a printed publication. The Court of Appeals also referred to the Johnson patent, but this issued less than a year before the claims were asserted by Warth and hence is not a bar under the rule of this Court in the *Chapman* case, *supra.* Defendant's use of the invention was also urged as being more than two years prior to the Warth divisional application, but was found by the District Court not to anticipate (antedate) the filing date of the Warth divisional patent (R., p. 2100) and this finding was not disturbed by the Court of Appeals although defendant strenuously urged that such finding was error.

and held that the delay of two years and four months in asserting specific claims in Warth's divisional application invalidated such claims in the absence of a legal excuse, notwithstanding that the subject-matter of said claims had not been disclosed in any patent, publication or prior public use for two years or more before such claims were inserted. The Court said (R., p. 2153):

> "The disclosure, however, had been continuously on file since January 7, 1927 (the filing date of the parent patent) and so the plaintiff contends that it is entitled to that filing date. We do not so understand the law, as laid down in Webster v. Splitdorf, 264 U. S. 463, 471, 44 S. Ct. 342, 343, 68 L. Ed. 792. Prima facie the two year limit applies to divisional applications, and an applicant who waits longer before claiming the invention disclosed in his application must justify his delay by proof of some excuse. No such excuse appears here."

The Court of Appeals (R., p. 2151) found that the Warth patent application originally "had claims sufficiently broad to cover it" (the specific subject-matter of the Warth divisional patent) but that such claims were cancelled on December 3, 1930. This was two years and four months before Warth again asserted claims to the specific subject-matter of his divisional patent. During this interval no intervening bar had arisen; see footnote, p. 3 *ante*.

Conflict between Circuit Court of Appeals in case at bar and other Circuit Courts of Appeals.

This interpretation of *Webster* v. *Splitdorf*, 264 U. S. 463, by the Circuit Court of Appeals for the Second Circuit directly conflicts with the interpretation of that case by the Circuit Courts of Appeals for the First Circuit and for the Sixth Circuit. Each of these last-named Courts has held the doctrine of the *Webster* case to apply only where there has been an adverse public use, a printed publication, or other intervening right more than two years

before the claims were presented. **See the quotations in the brief, pp. 21, 23, from the following decisions:**

Utah Radio Corp. Products v. *Boudette,* 78 F. (2d) 793 (C. C. A. 1st).

Wagenhorst v. *Hydraulic Steel Co.,* 27 F. (2d) 27 (C. C. A. 6th).

Wirebounds Patents Co. et al. v. *Saranac,* 37 F. (2d) 830 (C. C. A. 6th).

Furthermore, the interpretation of the *Webster* case by the Court of Appeals for the Second Circuit conflicts with the practice of the Patent Office for over fifty years. The Patent Office had always accorded a divisional application the benefit of the filing date of the parent application for all subject-matter common to the two applications, whether such subject-matter had been claimed in the parent application or not. The only exception, regardless of the lapse of time in presenting the claims in the divisional case, had been where the rights of others intervened more than two years before the claims were presented. This practice by the Patent Office has been in accordance with the decisions of this Court in *Chapman* v. *Wintroath* and *Webster* v. *Splitdorf, supra,* by analogy to the fundamental statute* which prohibits the issuance of a patent to the first inventor only if there has been a public use, printed publication

*Sec. 4886. (U. S. C., title 35, sec. 31) Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, or who has invented or discovered and asexually reproduced any distinct and new variety of plant, other than a tuber-propagated plant, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor.

or sale more than two years before the application for patent.

Obviously, this conflict in interpretation of the decision in *Webster* v. *Splitdorf* should be resolved by this Court. We submit that the interpretation by the Court of Appeals for the Second Circuit is not correct, because it establishes a bar to the grant of a patent not embodied in the fundamental statute. As this Court held in the *Chapman* case, *supra,* any bar established by a Court to the grant of a patent should be reconcilable with that statute and no Court can disregard any statutory provisions in respect to these matters "on the ground that, in its judgment, they are unwise or prejudicial to the interest of the public." *United States* v. *American Bell Telephone Co.,* 167 U. S. 224, 247.

The conflicting interpretations of the *Webster* case by the several Circuit Courts of Appeals is further emphasized by the decision of the Circuit Court of Appeals for the Eighth Circuit in *Hartford-Empire Company* v. *O'Bear-Nester Glass Co.,* 39 F. (2d) 769, which holds that if claims are presented in a divisional application more than two years after the filing of the parent application and a patent has issued to another at any time prior to the presentation of the claims, the claims are barred. **See the quotation from the Hartford decision in the brief, p. 24,** *infra.*

Under this rule the Johnson patent, issued *less than a year* before the Johnson patent claims were presented in the Warth divisional application, would invalidate the Warth divisional patent claims, although this Court in the *Chapman* case held that the claims of such a patent may be made at any time within two years.

Consequently, the Court of Appeals for the Eighth Circuit follows more closely the interpretation of the *Webster* case by the Court of Appeals for the Second Circuit in the case at bar than the interpretation by the Courts of Appeals for the First and Sixth Circuits. Yet, the Court of Appeals for the Eighth Circuit recognized the confusion when it said **(at 775):**

"The point is one with which, and with its variables upon varying facts, the courts have *had much trouble.** The law is yet seemingly in the process of crystallization as to what shall be the final rule. (Citing: *Chapman* v. *Wintroath, Webster* v. *Splitdorf, supra,* and other cases.)"

A second question presented and as to which the decision of the Circuit Court of Appeals in the case at bar conflicts with another Circuit Court of Appeals, is whether, assuming an excuse is required, the fact that the claims of the Warth parent patent were intended and believed to, and apparently do, cover the subject-matter of the Warth divisional patent claims, is an excuse for the lapse of over two years in presenting the divisional patent claims.

The Court of Appeals, reversing the District Court, held that, although Warth had claimed broadly the invention of the divisional patent prior to December 1930 in the parent application, the claims of his parent patent did not cover the divisional patent subject-matter, and that the subject-matter was not again claimed until two years and four months thereafter in the application for the divisional patent.

It is settled that more than two years lapse or delay, even after an intervening right may be excused "by special circumstances which show it to have been not unreasonable" (*Webster* v. *Splitdorf, supra*). The Courts are also in agreement that, if a parent patent has claims broad enough in scope to include a specific form of the invention, then more than two years delay in asserting, in a divisional application, claims limited to such specific form is not unreasonable and is excused. The Court of Appeals for the Second Circuit so held (R., p. 2153).

In the case at bar, the "special circumstance" offered as an excuse, is that the claims of the parent Warth patent *were intended to and, on their face, are* broad enough to

*Italics ours throughout unless otherwise stated.

cover the specific form of the invention claimed in the divisional patent. And the plaintiff believed they did. Moreover, the District Court held that the parent patent claims are of sufficient breadth to cover the subject-matter of the divisional patent claims. (R., p. 2082)

Such an excuse for delay was accepted by the Court of Appeals for the Sixth Circuit in the *Wagenhorst* case,* *supra,* but was rejected by the Court of Appeals for the Second Circuit in the case at bar, although petitioner urged that as an excuse for delay. Instead, by an arbitrary reading of a limitation into the claims** of the Warth parent patent, the Court so limited the scope of those claims as to exclude the subject-matter of the divisional patent and then held that the claims thus interpreted presented no excuse for delay.

Other courts have held that delay in presenting claims is excused and abandonment is negatived when, as here, an inventor believed, mistakenly or not, that he had broadly covered the invention by an earlier filed application. See: *McGrath* v. *Burke* (Court of Appeals, D. C.) 12 F. (2d) 161, 162; *MacLaren* v. *Stoetzel* (C. C. P. A.) 38 F. (2d) 125, 129. These cases are in point, since the question involved was, as in the case at bar, whether the applicant for patent exercised diligence in presenting claims.

The refusal of the Court of Appeals for the Second Circuit to excuse the delay in presenting the claims of the divisional patent directly conflicts with the decision of the

---

*In the *Wagenhorst* case, the Court, excusing delay in presenting claims in a divisional application because of the apparent breadth of claims in the parent application, said (at 31): "It may be said, with some certainty as to original claim 2, and with some probability as to claims 1 and 3, that, if granted, they would have *seemed* to cover defendant's later structure, *and might or might not have been construed in that way.*"

**This was done notwithstanding the rule of this Court in *Altoona* v. *American Tri-Ergon,* 294 U. S. 477, 487, that a claim should not be construed "by reading into it parts of the specifications * * which the patentees failed to include in it."

Court of Appeals for the Sixth Circuit in the *Wagenhorst* case wherein it was held that it is the *seeming* scope of the claims of the parent application which is the determining factor, regardless of whether such claims might or might not be finally construed broadly.

Obviously, this conflict of decisions between the two Circuit Courts of Appeals should be resolved by this Court. It is submitted that the ruling of the Court of Appeals for the Sixth Circuit is correct and that under the same it was reasonable* for Warth to rely on the apparent and intended scope of the parent patent claims, regardless of the final limited construction given to such claims by the Court of Appeals for the Second Circuit.

THE QUESTIONS PRESENTED.

1—Does this Court's decision in *Webster* v. *Splitdorf* mean that, *even in the absence of intervening adverse rights,* an excuse must be shown for a lapse of more than two years in presenting claims in a divisional application regularly filed and prosecuted in accordance with the Patent Office rules?

2—Where there has been more than two years delay in asserting specific claims in a divisional application, is it an excuse for the delay that there were claims in the parent patent which, on their face, covered and were reasonably believed to cover, the subject-matter of the divisional claims, even if a Court later interpreted the parent patent claims not to cover such subject-matter?

Public Importance of Questions Raised.

Because of the conflicting interpretations of this Court's decision in the *Webster* case, there is great confusion as to

*The finding of the District Court (R., p. 2082) that the claims of the parent patent are broad enough to include the specific form of the invention defined in the divisional patent claims is evidence of the reasonableness of Warth's conduct.

the rights and duties of applicants for divisional patents. Divisional applications represent a very large percentage of cases prosecuted before the Patent Office* and divisional patents a corresponding large percentage of those granted. This Court, in the *Chapman* and *Webster* cases, has already recognized the importance of divisional applications and patents and that they should be favored "designed as they are to secure the patent to the first discoverer".

Under the rule established by the Court of Appeals for the Second Circuit in this case, the practice of the Patent Office with respect to claims presented in divisional applications is incorrect, and numerous invalid divisional patents are being granted. It is vital that the public know to what extent these patents are enforceable.

Moreover, the confusion which has arisen from the conflicting interpretation of this Court's decision in the *Webster* case by the Patent Office and the various Courts of Appeals has given rise to great uncertainty as to (a) under what circumstances the two year limit shall be applied, and (b) when the limit begins to run.

The exception in the *Webster* case to the rule of this Court that divisional applications are entitled to the filing dates of parent applications for any matter disclosed in the latter, whether claimed or not, should be made definite in the interest of the public and inventors alike.

As to the secondary question, this Court has never decided whether facts such as presented here are an excuse for a delay in presenting claims in a divisional application. The Court of Appeals for the Sixth Circuit in the *Wagenhorst* case has held that the presence of claims in the parent application, on which the patentee reasonably relied as covering the invention, constitutes an adequate excuse for

---

*For example, in 1934 and 1935, the last years records were maintained by the Patent Office, approximately every eighth applicant for patent was required to file divisional applications to protect his full disclosure. In 1934, examination of applications resulted in 7162 requirements for divisions and in 1935, 7609 requirements.

delay. The Court of Appeals for the Second Circuit in the case at bar has held to the contrary. Manifestly, it is of great importance that this conflict be resolved by this Court.

It is to the interest of both inventors and the public that divisional applications be favored. This Court's statement in the *Chapman* case, *supra,* that divisional applications are not to be treated in a "hostile spirit", is a recognition of their importance.

Encouragement of divisional applications induces inventors to file disclosures of their inventions promptly and completely. As this Court said in the *Chapman* case, divisional applications facilitate the determination of the first inventor to whom the patent should issue under the statute.

It is an everyday occurrence for an inventor, in his aim to file a full disclosure, to describe more than a single invention. Not infrequently, the inventor is unaware at the time of filing that certain phases of his disclosure are inventions and must be separately and specifically claimed. It is not unusual for an inventor to realize only more than two years after filing his application the necessity for *specific* claims to certain phases of his original disclosure. Before the rule by the Circuit Court of Appeals for the Second Circuit in this case, an inventor was entitled to claim at any time, either in his original patent or in a division, anything he disclosed, whether or not he initially recognized it as an invention or the necessity for claiming it specifically, unless there was an intervening adverse public use, patent or printed publication more than two years before the assertion of the claims.

The new rule laid down in the case at bar penalizes the inventor who discloses more than a single invention in his original application, and thus discourages the complete and prompt filing heretofore induced by the benefits accorded divisional applications. By withholding such disclosures the inventor incurs only the risk that some bar under the statute (Sec. 4886 U. S. C., title 35, sec. 31, p. 5, *ante*) may arise.

By filing them, he incurs, under this rule, the obligation of continuously claiming *specifically* everything initially described under the penalty that, if he overlooks or for any reason fails to claim some phase of his disclosure for a period of more than two years, prima facie he is not entitled to a patent thereon, whether there has been an adverse intervening right or not. Never before has such a drastic rule been laid down with respect to divisional applications.

REASONS RELIED ON FOR THE ALLOWANCE OF THE WRIT.

Your petitioner respectfully prays that the writ be allowed for the following reasons:

1—Because the decision of the Circuit Court of Appeals for the Second Circuit is in direct conflict with decisions of the Circuit Court of Appeals of the First Circuit in *Utah Radio Corp. Products* v. *Boudette*, 78 F. (2d) 793, and of the Circuit Court of Appeals for the Sixth Circuit in *Wagenhorst* v. *Hydraulic Steel Co.*, 27 F. (2d) 27, and *Wirebounds Patents Co. et al.* v. *Saranac*, 37 F. (2d) 830, and the decisions of the Sixth Circuit are in conflict with the decision of the Circuit Court of Appeals of the Eighth Circuit in *Hartford-Empire Company* v. *O'Bear-Nester Glass Co.*, 39 F. (2d) 769, which to an extent supports the decision of the Court of Appeals in the case at bar. See *supra*, pp. 4, 6.

2—Because the decision of the Circuit Court of Appeals for the Second Circuit misinterprets and misapplies the decision of this Court in *Webster Co.* v. *Splitdorf*, 264 U. S. 463. See *supra*, pp. 4, 6.

3—Because the decision of the Circuit Court of Appeals for the Second Circuit overturns the practice of the Patent Office, as it has existed for more than fifty years, with respect to the right of an applicant to present claims in a divisional application. See *supra*, p. 5.

4—Because the public interest and the interest of inventors require that the rights and duties in respect to the presentation of claims in divisional applications and the rule

of law on the subject be defined and explained so that the Patent Office and the courts of the several circuits may be instructed in the application of the rule to particular states of facts to the end that reasonable uniformity of decision among the circuits may be restored. See *supra*, pp. 9, 11.

PRAYER.

WHEREFORE, your petitioner respectfully prays that a writ of certiorari be issued to the United States Circuit Court of Appeals for the Second Circuit to the end that this cause may be reviewed and determined by this Court; that the decree of the Circuit Court of Appeals for the Second Circuit be reversed; and that petitioner be granted such other and further relief as may be proper.

CROWN CORK & SEAL COMPANY, INC.,
By THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Petitioner.

BLANK

PAGE

BRIEF IN SUPPORT OF PETITION FOR WRIT OF CERTIORARI.

Opinions of Courts Below.

The opinion of the District Court (Campbell, J.,) is found at pages 2071 and 2090 of the record and is reported in 14 F. Supp. pp. 264 and 270.

The opinion of the Circuit Court of Appeals (Circuit Judges Manton, L. Hand and Swan, Judge Swan writing, Judge Manton dissenting) is reported at 86 F. (2d) 698, 701 and appears at page 2150 of the record.

Jurisdiction.

The judgment of the Circuit Court of Appeals was entered December 21, 1936 (R., p. 2156). Petition for rehearing was denied January 22, 1937 (R., p. 2157). Extension of thirty days from April 22, 1937 for filing petition for certiorari was granted by Mr. Justice Stone on April 8, 1937 (R., p. 2159).

The Statute giving jurisdiction is Section 240 (a) of the Judicial Code (28 U. S. C. Sec. 347).

Statement of the Case.

The foregoing petition contains a summary of the material facts necessary to an understanding of the reasons relied upon for the allowance of the writ, as well as a statement of the questions involved in the case.

Specification of Errors.

1. The Circuit Court of Appeals for the Second Circuit erred in finding and holding that a two year time limit for presenting claims in a divisional application, as announced by this Court in *Webster Co.* v. *Splitdorf Co.*, 264 U. S. 463, is applicable in the present case and in the absence of adverse public use, patenting or publication more than two years before the presentation of the claims.

2. The Circuit Court of Appeals for the Second Circuit erred in ignoring the apparent and intended breadth of the claims in the parent patent and in not holding that since these claims were believed and intended to be, and apparently are, of a breadth to cover the subject-matter of the divisional patent, the delay in presenting the claims in the divisional patent is excused.

3. The Circuit Court of Appeals erred in reversing and in not affirming the decree of the District Court sustaining the parent and divisional patents as valid and infringed, and in awarding costs to defendant-respondent.

ARGUMENT.

I.

The Circuit Court of Appeals for the Second Circuit has extended the doctrine of Webster v. Splitdorf beyond anything justified by that or any other decision of this Court.

In *Chapman* v. *Wintroath*, 252 U. S. 126, this Court reiterated the rule that a divisional application is entitled to the benefit of the filing date of the parent application "with all its priority of right" and for anything disclosed in the parent application, whether claimed in the parent application or not. In the same case this Court also stated, as an exception to that rule, that where a patent has issued to another more than two years before its claims are copied by a divisional applicant for interference purposes, the lapse of such a period bars the divisional applicant from copying and obtaining the claims in the issued patent.

In *Webster Co.* v. *Splitdorf Co.*, 264 U. S. 463, this Court announced a further exception to the rule that a divisional application relates back to the filing date of the parent application.

The facts of the *Webster* case briefly were: The original application for the Kane patent in suit was filed Feb-

ruary 2, 1910. In 1915 Kane filed a divisional application, in the prosecution of which on June 17, 1918, claims were presented to subject-matter *deliberately* not claimed either broadly or specifically in the original application, because Kane considered their subject-matter one merely of design. *These claims were presented five years after a complete disclosure of their subject-matter appeared in an issued Podlesaks patent and an equal length of time after the device had been in general public use.* This Court found "that Kane did not originally intend to assert" the claims, that the claims were "broader than those originally sought" and "that the delay was unreasonable, and, under the circumstances, as shown by the record, constitutes laches" by which Kane lost his right to a patent on the subject-matter of the late presented claims.

We do not understand that this Court held in *Webster* v. *Splitdorf,* as stated by the Court of Appeals for the Second Circuit, that in *any* case where there has been a delay of more than two years in presenting claims in a divisional application, such delay, *even in the absence of public use or intervening rights,* invalidates the delay in the absence of excuse. The facts in the case at bar are not analogous to those in the *Webster* case. While here there was a lapse* of more than two years in presenting the claims of the divisional patent, *yet here had been no adverse public use of the invention before or during the two year period. Nor had there been any disclosure of the invention in an issued patent or printed publication,* except the Johnson patent No.

*In the case at bar, the Court of Appeals, reversing the District Court, held that there was a lapse *after previous claiming of the divisional patent invention* and not delay with no previous claiming, as in the *Webster* case. The Court of Appeals found that Warth had claimed the divisional patent subject-matter in his parent application, but that there was a lapse in the assertion of claims thereto between December, 1930 and April, 1933 (R., p. 2153). Hence, this case is distinguished from the *Webster* case where the invention had not been claimed in the parent application and the failure was deliberate.

1,852,578 (R., p. 746), which issued *only a year* before the claims were asserted, and, therefore, well within the two year period allowed for copying the Johnson claims under the *Chapman* case, *supra.* Moreover, as the Court of Appeals found, Warth had claimed broadly the subject-matter of the divisional patent during the pendency of his parent patent, and hence there was no *deliberate* failure to claim the subject-matter prior to claiming it in the divisional application. On the contrary, the Court of Appeals held that Warth did prosecute in the parent application claims covering the subject-matter of the divisional patent (R., p. 2151). Further, Warth *believed* he had covered the invention of the divisional patent by the claims issued in the parent patent. The claims of the parent patent *apparently are* of such breadth; the District Court so held (R., p. 2082) although the Court of Appeals later construed narrowly the parent patent claims.

In short the Court of Appeals held that Warth's unintentional *lapse* in claiming the specific divisional patent method for two years and four months, *absent intervening rights,* is the equivalent of the eight year *deliberate delay and failure* to claim an invention, considered in the *Webster* case, *where public rights in the meantime accrued.* On this finding, the Court has denied Warth the benefit of the general rule that the divisional patent relates back to the filing date of the parent patent.

The uncertainty with respect to the exception to this general rule announced in the *Webster* case, is recognized by the Circuit Court of Appeals for the Sixth Circuit in *Wagenhorst* v. *Hydraulic Steel Co.,* 27 Fed. (2d) 27, 29, (Denison, J.,) where the Court said, referring to the *Webster* case:

> "It is not clear from the opinion what result would have been reached, if based upon only a part of the circumstances."

The Court (C. C. A. 6th) then proceeded to point out that the controlling fact in the *Webster* decision was not the fact that the claims were presented after delay *"but because it extended so long after the 1913 public disclosure"*. This, we believe to be the correct interpretation of this Court's decision in the *Webster* case.

The extreme harshness of the rule announced by the Circuit Court of Appeals for the Second Circuit is evident from the fact that it applies to divisional applications a two year time limit which is not imposed upon them by the fundamental statute.* The statute bars the allowance of a patent *only if there has been a printed publication, public use or sale of the invention more than two years before the filing date of the application.* The rule established by the Court of Appeals for the Second Circuit requires an excuse for delay and *prima facie* bars a patent whether statutory bars, as such or by analogy, exist or not. The rule, as applied in this case, therefore, contrasts with the statement of this Court in *United States* v. *American Bell Telephone Co.*, 167 U. S. 224, 247, that "No court can disregard any statutory provisions in respect to these matters on the ground that, in its judgment, they are unwise".

. . .

In the present case, aside from the admitted use of the invention by plaintiff,** neither the District Court, nor the Court of Appeals, found evidence of any use of the invention or public disclosure thereof more than two years before the filing of the divisional application. Consequently, under the rule of the Circuit Court of Appeals for the Second Circuit a divisional application is not entitled even to the benefit of its own filing date if there has been a two-year lapse in claiming its subject-matter.

---

*U. S. C., title 35, sec. 31, p. 3 of Petition.

**Held by the Circuit Court of Appeals for the Sixth Circuit in *Wirebounds Patents Co. et al.* v. *Saranac*, *infra*, p. 23, not to bar a divisional application since not an *adverse* use.

The Court of Appeals found no statutory bars and refers only to the issuance of the parent Warth patent and to the issuance of the Johnson patent during the two year period. But the parent Warth patent *contained no description of the invention,* and hence was not a printed publication. The Johnson patent issued *less than one year* before the claims were presented, and hence is not a bar under the decision of this court in *Chapman* v. *Wintroath, supra.* Consequently, the Court of Appeals for the Second Circuit overlooks the admonition of this Court in the *Chapman* case with reference to a patent such as Johnson's that:

> "Such a prior patent is in no sense a bar to the granting of a second patent for the same invention to an earlier inventor, provided that his application is filed not more than two years after the date of the conflicting patent. The applicant may not be able to prove that he was the first inventor but the statute gives him two years in which to claim that he was and in which to secure the institution of an interference proceeding in which the issue of priority between himself and the patentee may be determined in a prescribed manner."

Warth acted in compliance with the above rule, copied the Johnson claims within one year from the date his patent issued, and was awarded the claims as prior inventor.

II.

There is an irreconcilable conflict between the Circuit Courts of Appeals for the Second, First, Sixth and Eighth circuits as to the applicability of Webster v. Splitdorf to a case where claims have been inserted in a divisional application more than two years after the filing of the parent application but less than two years after there was an intervening public use, patent or publication.

The Circuit Court of Appeals for the Second Circuit has evidently seized upon this Court's reference in the *Webster* case to the two year limit against broadened reissue pat-

ents* as a basis for its holding that when there has been a lapse of two years in presenting claims to particular subject-matter in a divisional application, such delay invalidates the claims in the absence of valid excuse, *notwithstanding the fact that there may have been no adverse public use of the invention or disclosure of it in a printed publication or patent more than two years prior to the date the claims are presented, as there was in the Webster case.*

The interpretation of the *Webster* case by the Circuit Court of Appeals for the Second Circuit directly conflicts with the interpretation adopted by the Court of Appeals for the First and Sixth Circuits whose decisions are discussed in the foregoing petition at pp. 5, 6. The following extracts from the opinion by these latter Circuits demonstrate that each of them construed the doctrine of *Webster* v. *Splitdorf,* as applicable **only** where the claims of the divisional application were first presented more than two years *after the invention was disclosed to the public by adverse use, publication or patent.*

Utah Radio Corp. Products Co. v. *Boudette,* (C. C. A. 1st), 78 Fed. (2d) 793.

The Court, stating the facts of the *Webster* case, pointed out that the subject-matter of the divisional claims had been disclosed in a Podlesaks patent issued over five years before the claims were first presented and had been in public use by others than the patentee for over five years. The court said (at 799) after *referring to the Webster case,* that claims may "reasonably" be presented at any time within two years after the adverse public use:

*There is no analogy in the case at bar to an application for reissue filed more than two years after the original patent issued, since there was no printed disclosure in the parent Warth patent, as in the case of an original patent to be reissued. Hence, this analogy mentioned in the *Webster* case does not apply.

"In that (*Webster*) case the court applied by way of analogy *the statutory two year period of prior publication and public use* * * *.

"There the subject-matter of claims 7 and 8, though not claimed in the Podlesaks patent, *was disclosed by it,* and consequently, on the issuance of that patent in 1913, *was published and given to the public.*"

"In the case now before us, the subject-matter of claims 1, 2, and 5 here in issue was known and in public use through the sale of RCA loudspeaker 104 in November, 1925, some four years before claims 1, 2 and 5 were asked for, whereas *they reasonably could have been inserted in the original application* of April, 1926, *or at any time thereafter up to two years from November, 1925,* but were not until October 17, 1929, when the divisional application was made."

* * * * *

Wagenhorst v. *Hydraulic Steel* (C. C. A. 6th) 27 F. (2d) 27, 29.

The Court (Denison, J.,) after reciting the facts of the *Webster* case said:

"From the recitals and reasoning of the opinion, we are unable to see that the fact that the amendment of 1918 was presented in a divisional application, instead of an original application, was of any importance to the result reached. The long delay which elapsed between the original and the divisional was important, *not because it was the interval between these two applications, but because it extended so long after the 1913 public disclosure.* If the original application of 1910 had not matured into a patent in 1916, but had continued pending, and the amendment in 1918 had been offered in that original application, and the facts had been otherwise the same, we see nothing in the opinion, and no reason occurs to us which would indicate a different result. In other words, claims 7 and 8 were invalid because, in an effort to *broaden any previous statements of the invention, they were first presented* by an amendment offered *five years after their subject-*

matter had been disclosed to the public by the Podlesaks patent; and such an effort to broaden the claim of the invention was, by analogy to the reissue rule, barred by laches, estoppel, and intervening rights. In the present case the divisional application was filed promptly after the intervening device appeared, and the Webster case does not apply."

* * * * *

Wirebounds Patents Co. et al. v. *Saranac,* (C. C. A. 6th), 37 F. (2d) 830, 840, 841.

The District Court had held the patent in suit invalid under the ruling in the *Webster* case. The Court of Appeals (Denison, J.,) discussing the *Webster* case said:

"This was before we had by our Wagenhorst case, * * * adopted our interpretation the Splitdorf decision." * * *

"This case is plainly not within the Splitdorf rule, as we understand it, either by parallelism or by strict analogy. Defendant points out, as a general analogy, that the machine and method had been in public use by the applicants, who became the patentees, and under licenses from them, all for more than two years before the divisional application was filed. This is true. When it is remembered that the divisional application is normally entitled to the benefit of the original filing date, it is not easy to see how public use under license from the applicants can amount to that laches under which adverse rights may arise; *or how the Splitdorf rule can apply unless the delay is after the public appearance of an adverse claimant, or perhaps, one who may be an adverse claimant;* but we find it unnecessary to decide that question."

The decision by the Circuit Court of Appeals in the case at bar also conflicts with the interpretation of the *Webster* case adopted by the United States District Court for the District of Delaware (Morris, J.,) in *Dubilier Condensor*

Corporation v. *Radio Corporation of America*, 34 F. (2d) 450, 462.*

The Courts of the First, Third and Sixth Circuits have, therefore, restricted the application of the ruling in the *Webster* case to a situation in which the invention has been generally made available to the public more than two years prior to the presentation of the claims either by disclosure in another patent or by adverse public use or sale. Such facts create bars recognized by the statute (U. S. C. title 35, sec. 31, p. 3 *ante*) against the issuance of patents on an original application and therefore afford a basis for a finding of invalidity on grounds analogous to those created by the statute. But there is no such basis here.

The Circuit Court of Appeals for the Eighth Circuit has held in *Hartford-Empire Co.* v. *O'Bear-Nester Glass Co.*, 39 F. (2d) 769, upon the authority of this Court's decision in the *Webster* case, that although claims may be presented in a divisional application after the lapse of more than two years, yet where in the meantime a patent "shall have been issued to a *stranger* more than two years after the original applicant files his original application" the claims are barred. In that case, the court after referring to *Webster* v. *Splitdorf*, *Chapman* v. *Wintroath* and the *Wagenhorst* case, *supra*, said (at 776):

> (3) "(d) Absent estoppel in pais, through accrual of public or private rights, such amendments of claims, or the filing of such divisional applications, may be allowed more than two years after the original application is filed, or after the last preceding divisional ap-

---

*In the *Dubilier* case the Court, after referring to the fact that the claim (9) was not submitted until three and one-half years had elapsed after the divisional application was filed, said, in distinguishing the facts from the *Webster* case and others:

> "But unlike those cases, in the suit at bar there was no delay of more than two years *after others had entered the field* and there is no presumption that Dunmore had knowledge of defendant's loud speaker, or that the amendment was motivated by it."

plication is made. (e) *But if a patent*, which makes claim to the subject-matter present and disclosed in the application of the original applicant, but not claimed by the latter, *shall have been issued to a stranger more than two years after the original applicant files his original application, the latter can thereafter neither amend his original claims* (so as to broaden them) *nor file a divisional application*, embracings claims, so after two years patented to a stranger."

The above quoted ruling squarely conflicts with the decision by this Court in *Chapman* v. *Wintroath*, *supra*, but apparently would have justified the conclusion reached in the case at bar, since the Warth divisional application was not filed until more than two years after the original Warth application and the Johnson patent No. 1,852,578 was granted before the divisional patent claims were asserted.

The ruling of the Circuit Court of Appeals for the Eighth Circuit in the *Hartford* case, *supra*, also squarely conflicts with the ruling of the Sixth Circuit Court of Appeals in the *Wagenhorst* case, *supra*, where the Court said:

> "The opinion (*Chapman* v. *Wintroath*) has been sometimes thought to indicate that the deadly two-year period begins to run from the time of filing the original application * * *",

and then proceeded to state its own contrary interpretation of this Court's decision in the *Chapman* case.

This further conflict between the Second and Eighth Circuits on the one hand, and the First, Third, and Sixth Circuits on the other, shows the great uncertainty which has arisen with respect to the meaning of this Court's decision in *Webster* v. *Splitdorf*.

III.

There is a further irreconcilable conflict between the Circuit Courts of Appeals for the Second and Sixth Circuits as to what constitutes valid excuse for delay in presentation of claims in a divisional application.

This Court said in the *Webster* case that delay of more than two years may be excused "by special circumstances which show it to have been not unreasonable". The finding by the Circuit Court of Appeals for the Second Circuit in the case at bar that there is no excuse for the delayed presentation of the claims in the Warth divisional patent ignores the *apparent* and *intended* breadth of the claims in the parent patent. The Court of Appeals stated (R., p. 2153) that, had it interpreted the claims of the parent patent to dominate the method of the divisional patent, the delay in presenting the specific divisional patent claims would be excused. But the Court refused to accept as an excuse for the delay the "special circumstance" that the parent patent claims were *intended* and *believed* to dominate the divisional patent method, *and were reasonably susceptible to such an interpretation,* as shown by the fact that the District Court so interpreted them.

The Court of Appeals tacitly admitted that the parent patent claim *might* be interpreted in accordance with the District Court finding, but said that such interpretation "would make it invalid under the old 'slide machine' "* (R., p. 2152). Consequently, the Court declined to follow the District Court, and instead read into the claims the "heated plunger" limitation.** Such a construction of patent claims was condemned by this Court in *Altoona* v. *American Tri-Ergon,* 294 U. S. 477. Manifestly, Warth should not be held

*This was the machine used by plaintiff before the methods of the patents in suit were developed.

**We have included in an appendix an explanation of the Warth patents sufficient to enable the Court to understand the strained construction of the claims to which the Court of Appeals resorted.

accountable for failure to anticipate the action of the Court of Appeals in inserting a limitation into his claims which the language thereof does not require. Certainly, Warth's confidence in the breadth of the parent patent claims was not "unreasonable", in view of the fact that the District Court later found that the claims *do* dominate the subject-matter of the divisional patent. Under these circumstances, we submit that Warth's action in relying upon the parent patent claims was reasonable and satisfies the requirement laid down by this Court in the *Webster* case that delay may be overcome by "circumstances which show it to have been not unreasonable".

The limited construction of the parent patent claims adopted by the Court of Appeals is particularly strained in the case at bar, since the heated plunger (read into the claims) was not originally disclosed by Warth in his parent application as filed, and was illustrated and described by an amendment presented in response to *a Patent Office requirement* (R., p. 1497) for a drawing. When the drawing was presented, the illustrated heated punch was identified only as "suitable mechanism" for practicing the method broadly described (R., p. ~~1490, ll. 3-37~~ 1514, l. 31).

The refusal by the Court of Appeals to accept the *intended* and *apparent* breadth of the parent patent claims, upon which Warth reasonably relied to dominate the divisional patent preheating method, as an excuse for the delay, conflicts with the ruling by the Court of Appeals for the Sixth Circuit in *Wagenhorst* v. *Hydraulic Steel Co.*, 27 F. (2d) 27, 31, in which the Court held that a claim in the parent application or patent which *seems* of broad scope, *regardless of the finally determined actual scope*, is a reasonable excuse for the delay. The Court said in the Wagenhorst case:

> "It may be said, with some certainty as to original claim 2, and with some probability as to claims 1 and 3, that, if granted, they would *have seemed to cover defendant's later structure, and might or might not have been construed in that way.* The trouble was that with

that construction they went beyond the applicant's device and reached the prior art. Wagenhorst's amended divisional claim restricted his claimed invention to the specific form of its concrete embodiment. This is a very different thing from the enlargement in the Webster case."

An apparently broad claim in an earlier application or patent, and an inventor's reliance thereon, even though mistaken, has been held by other Courts to be an excuse for delay in asserting claims, and to negative abandonment. See *McGrath* v. *Burke,* 12 F. (2d) 161, 162 (Appeals, D. C.) and *MacLaren* v. *Stoetzel* (C. C. P. A.) 38 F. (2d) 125, 129.

Since, as the Court of Appeals stated, Warth's delay would not have been "unreasonable" had his parent patent claims been construed to cover the subject-matter of the Warth divisional patent claims, the secondary question is simply this—

Should the criterion of the diligence of an applicant in presenting specific claims in a divisional application be (*a*) the scope of the parent patent claims finally determined by judicial construction, as held by the Second Circuit, or (*b*) as held by the Sixth Circuit, the *seeming* or *apparent* scope of the parent patent claims reasonably* *relied upon* and *intended* by the patentee?

We submit that the latter is the correct rule since one's diligence at a particular time should be measured in the light of the circumstances (parent patent claim scope) as then reasonably understood by him and not as later and unexpectedly determined upon judicial inquiry.

IV.

The questions involved are of vital public importance.

Under the statutes, the patent is issued to the first discoverer. But an invention is not completed until it has been reduced to practice, either actually or constructively by the

*As indicated by the District Court's opinion in the case at bar.

filing of an application. This Court stated in *Chapman* v. *Wintroath, supra,* "not only have later or divisional applications not been dealt with in a hostile spirit by the Courts, but, on the contrary, designed as they are to secure the patent to the first discoverer they have been favored."

. . .

The substantial number* of divisional applications and patents are the result of requirements by the Patent Office that applications disclosing several inventions must be divided so that only a single invention is covered in a single patent. These requirements have not diminished the completeness of application disclosures, because of the liberal policy with which the Patent Office and the Courts have generally favored divisional applications.

But it must be recognized that many divisional applications are not, and cannot be filed within two years from the filing of the original application. In many cases, it is only in the course of prosecution after a lapse of two years, that an inventor is caused to realize, as here, the necessity for *specific* claims to particular phases of his disclosure. This delayed recognition of the need for specific claims frequently results in later filed divisional applications. *Such exigencies are not recognized by the decision of the Court of Appeals for the Second Circuit,* which in the case at bar has applied the harsh rule that a two year delay in presenting claims by divisional applications creates a presumption against the patent validity. It is vital, therefore, in view of the varied conditions under which the necessity for divisional applications arises, and for a continuance of the policy of favoring these applications, that this Court definitely state the *limitations* of the *Webster* case exception to the rule that divisional applications shall have the priority rights of parent cases. Unless and until this is done, the public and inventors alike will have no certainty as to when, and under what conditions, divisional applications may be filed or valid divisional patents granted.

---

*See typical figures in Petition, footnote p. 10, *ante.*

Conclusion.

In conclusion, we respectfully submit that not only should the conflict between the several circuits with respect to *Webster* v. *Splitdorf* be resolved by an authoritative statement by this Court, but also that this Court should hold—

(a). That claims in a divisional application shall be deprived of the benefit of the filing date of the parent application only when there has been a delay in presenting them for more than two years after an intervening right in the form of an adverse public use or disclosure, such as a printed publication or patent.

(b). That a mere lapse of two years in presenting claims in a divisional application does not prima facie bar their allowance or require excuse.

(c). That when an inventor has obtained in a parent patent claims which are intended and believed to, and apparently do, cover the subject-matter of the claims of the divisional patent, his delay in presenting specific claims in the divisional patent is excused.

Respectfully submitted,

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Petitioners.

Appendix.

The method of the parent Warth patent Reissue 19,117 (R., p. 711), is illustrated by the attached drawing. A line of assembled crowns* is fed step by step beneath a heated punch. A strip of facing material coated with a thermoplastic (heat-softened) adhesive, such as metal foil coated with gutta percha, is fed over a line of assembled crowns, a spot is punched from the strip and the punch carries the spot down and adheres it under heat and pressure (from the punch) to the cork disc of the assembled crown. The cutting punch is then raised and the crown moved to the next position where the spot is again subjected to pressure from a heated plunger, thus insuring a more perfect union. Finally, the now-spotted crown is held under a cold plunger until the adhesive is cool. This operation is performed at the rate of five hundred "spots" per minute for each punch (R., p. 96).

The Warth divisional patent No. 1,967,195, dated July 17, 1934 (R., p. 716) covers a method also illustrated by an attached drawing. The divisional patent differs from the parent patent, in that it describes the heat as being applied to the spot by preheating the cork disc which applies its heat to the spot and the claims are limited to this specific way of applying the heat to the spot. In other words, the cork disc is preheated so that at the instant the center spot is deposited, heat is applied to the spot from the cork disc.

The relationship of the two patents can be best explained by referring briefly to the history of the parent patent. The application for the parent patent filed in January, 1927 disclosed generally the step of applying heat and pressure to the spot at the instant it is deposited on the cork. It also specifically explained that the heat might be applied to the spot by preheating the cork disc. The method was claimed broadly while the application was pending, but no claims

*"Assembled crown" designates a metal shell of the crown type having a cork disc inserted therein.

specific to preheating the cork were presented. Shortly before the issuance of the parent patent, the reference to preheating the cork was cancelled, and there was substituted the **broader** expression that the invention is *"to utilize at the time of assembly both heat and pressure to unite the spot to the cork"* (R. p. 714 l. 47). At the same time the claims were amended to include the expression "upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky." The patent issued with this language in the specification and claims. Claim 3* is typical of the two parent patent claims in suit.

The District Court held (R., p. 2082) that the language of the parent patent specification and claims covered broadly the application of heat and pressure to the spot instantly upon assembly of the spot with the cushion disc, *regardless of the source of heat, i. e.,* whether by the punch, as described in the parent patent, or by a preheated cork, as described and claimed in the divisional patent. The Court of Appeals held that the expression *"applying simultaneously to the spot pressure and sufficient heat"* limits the claims to the application of heat to the spot by a heated plunger. As thus interpreted, the Court read the

---

*3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, *and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky,* thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure. (Italics ours.)

"heated plunger" into the claims so that the clause reads, (containing in italics the limitation inserted by the Court):

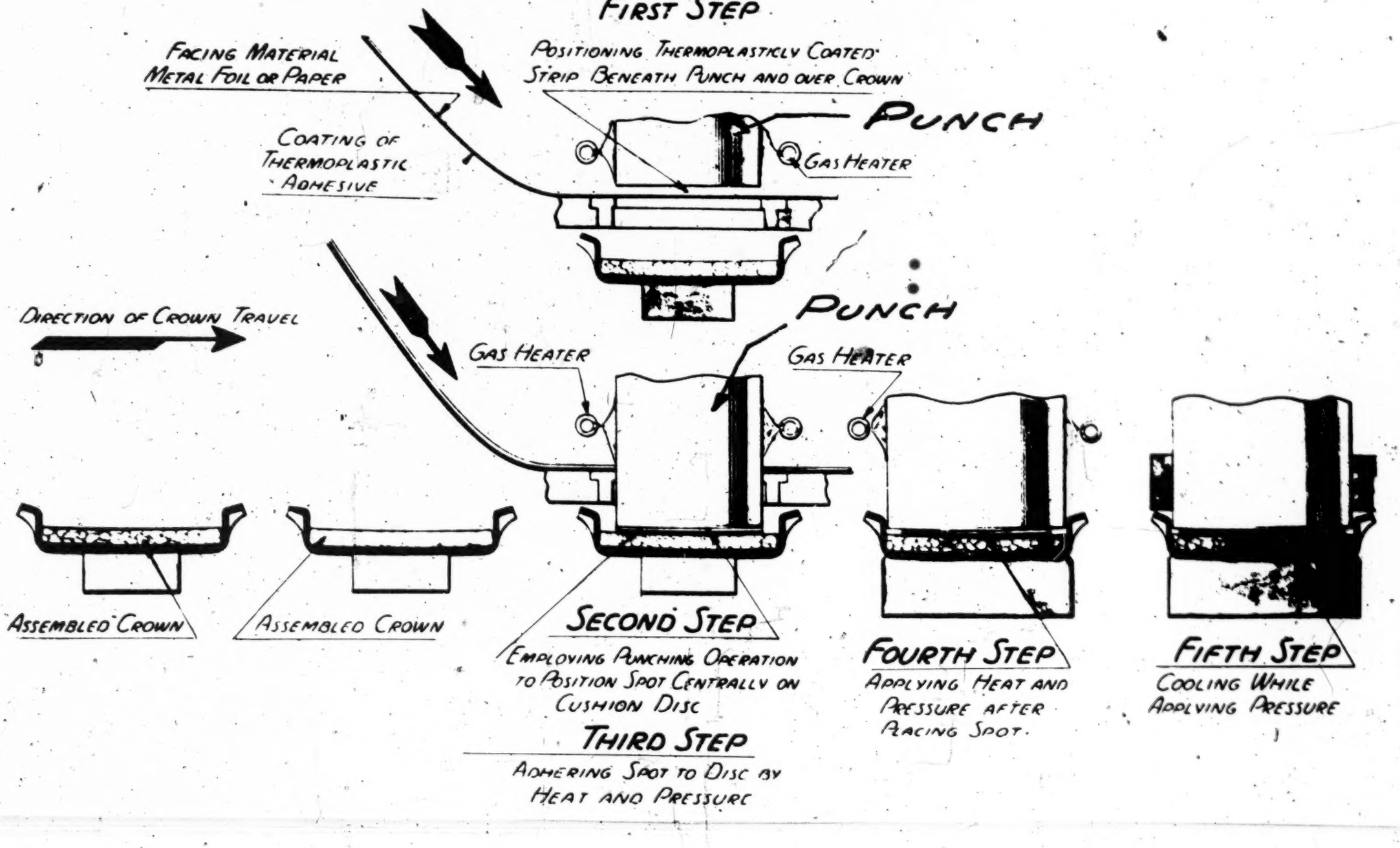
> "upon assembly applying simultaneously to the spot *by a heated plunger* pressure and sufficient heat to render the adhesive tacky".

Under this interpretation, the Court of Appeals reversed the District Court and held that the defendant did not infringe the parent patent because the defendant applied the heat mainly by preheating the cork, although partly by a heated plunger.

WARTH PARENT PATENT METHOD

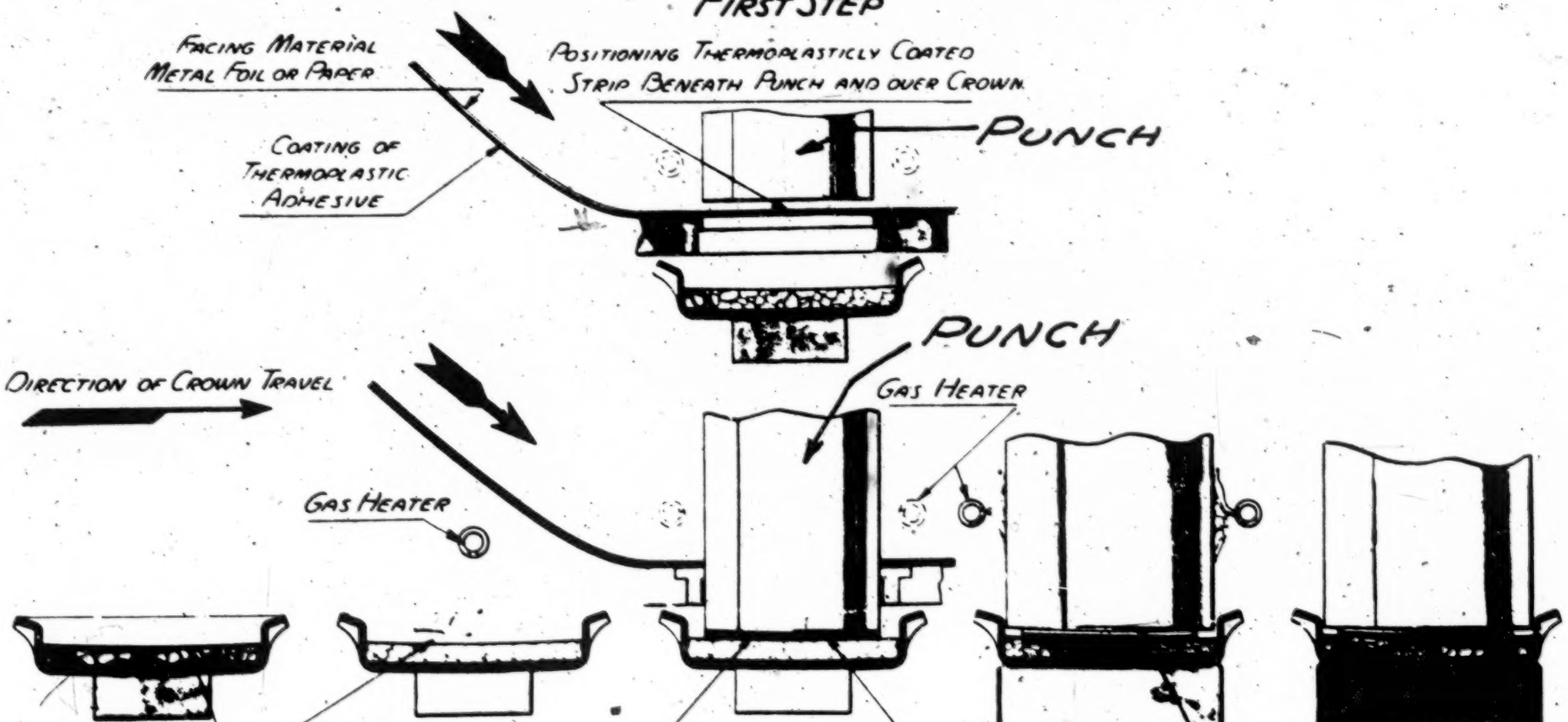
WARTH REISSUE NO. 19117 - MARCH 20, 1934.

ORIGINAL FILED JANUARY 7, 1927.



WARTH DIVISIONAL PATENT METHOD
WARTH PAT. NO 1,967,195 - JULY 17, 1934

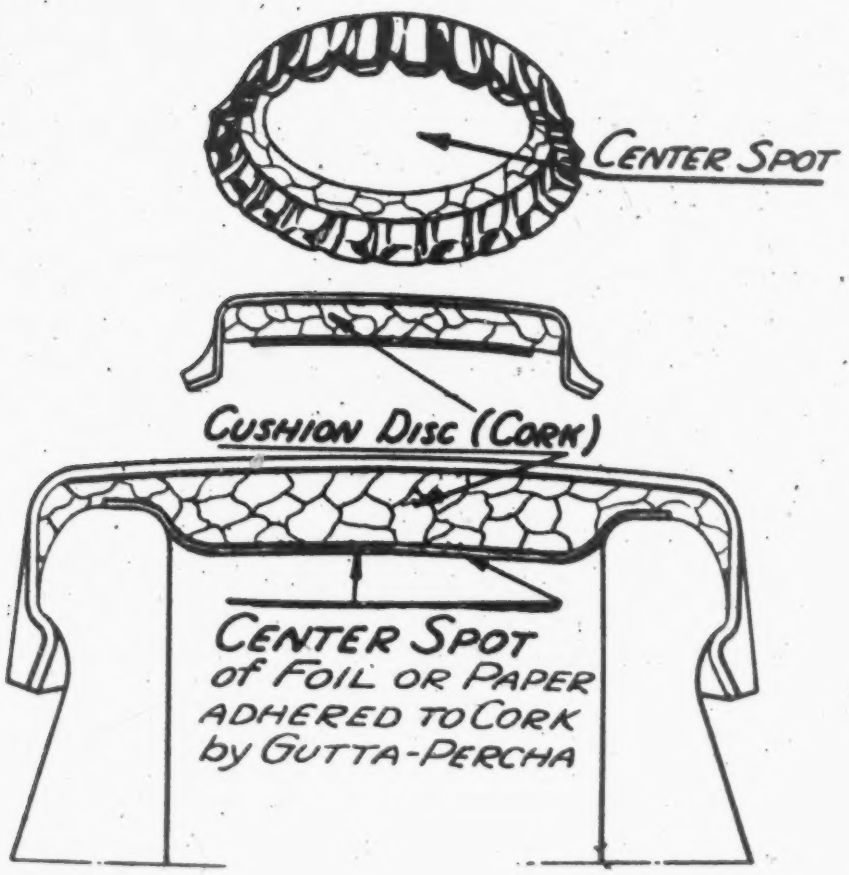
FIRST STEP



BLANK

PAGE

Center Spot Crown Cap



BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S
FILED
JUL 20 1937
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM, 1936.

No. [redacted] 72

CROWN CORK & SEAL COMPANY, INC., *Petitioner*,

v.

FERDINAND GUTMANN CO., INC., *Respondent*.

REPLY BRIEF FOR PETITIONER.

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Petitioner.

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

BLANK

PAGE

TABLE OF CONTENTS.

	Page
REPLY BRIEF FOR PETITIONER	1
I. The Decision of the Court of Appeals Holding Invalid the Warth Divisional Patent 1,967,195 Does Change the Established Practice With Respect to Divisional Applications. (Resp. Br. p. 12)	2
II. The District Court Found That There Were No Adverse Intervening Rights and the Finding Was Not Disturbed by the Court of Appeals Although Respondent Urged that it Was Error	4
III. The District Court's Finding of No Intervening Rights is Clearly Supported by the Record	6
IV. Respondent's Assertion that Petitioner Had Knowledge of Intervening Rights is Contradicted by the Record and the Undisturbed Finding of the District Court	8
V. The Subject-Matter of the Divisional Patent No. 1,967,195 Was Not Dedicated to the Public or Abandoned (Resp. Br. p. 12)	9
VI. The Petition Raises No Question of Fact as to the Parent Warth Patent Reissue 19,117	11

TABLE OF CASES CITED.

	Page
Adamson v. Gilliland, 242 U. S. 350, 353	5
Chapman v. Wintroath, 252 U. S. 126	3, 11
Cramer v. United States, 261 U. S. 219, 226	6*
Dwight and Lloyd v. Greenawalt, 27 Fed. (2d) 823, 831 (C. C. A. 2nd)	3
Mason v. United States, 260 U. S. 545, 556	6*
Mraz, 36 App. D. C. 435	12
United States v. United Shoe Machinery Co., 247 U. S. 32, 37, 41	6*
Wirebounds Patent Co. et al. v. Saranac, 37 Fed. (2d) 830	7

PUBLICATION CITED.

Hearings Senate Bill S. 475	2

*Footnote.

IN THE

Supreme Court of the United States

OCTOBER TERM, 1936.

No. 1008.

CROWN CORK & SEAL COMPANY, INC., *Petitioner*,

v.

FERDINAND GUTMANN CO., INC., *Respondent*.

REPLY BRIEF FOR PETITIONER.

We would not reply to respondent's brief except for the fact that it attempts to answer the petition by statements which are directly contrary to the record and the undisturbed fact findings of the District Court.

Respondent seeks to mislead this court to conclude that the questions submitted by the petition involve issues of fact. But that is not the case, since *every alleged issue of fact raised by respondent as to the questions of the petition has been expressly decided against respondent by the District Court, whose findings were not disturbed by the Court of Appeals.*

I.

The Decision of the Court of Appeals Holding Invalid the Warth Divisional Patent 1,967,195 Does Change the Established Practice With Respect to Divisional Applications (Resp. Br. p. 12).

Respondent's contention that the Court of Appeals' decision does not change the established treatment of divisional applications is extremely misleading. We repeat the statement (Pet. p. 5) that it does. A complete answer to respondent's contrary contention is to be found in the testimony of the Commissioner of Patents before the Senate Committee on Patents on June 24, 1937.* The Commissioner stated with reference to the case at bar:

> "Recently there has been presented to the Supreme Court a petition for a writ of certiorari to review the decision of the Circuit Court of Appeals of the Second Circuit in the case of *Crown Cork and Seal Company, Incorporated,* v. *Ferdinand Gutmann* (86 F. (2d) 698), predicated upon a conflict of decisions in the different circuits as to the proper interpretation to be given to the decision of the Supreme Court of the United States in *Webster Electric Company* v. *Splitdorf Electric Company* (264 U. S. 463). In that later decision the Supreme Court had discussed the effect of delay under certain circumstances in filing a divisional application and as to the validity in view of such delay of a patent granted on such divisional applications.
>
> If the Supreme Court should grant the writ and affirm the decision of the Circuit Court of Appeals of the Second Circuit, it may well be that a number of patents granted by this office would be invalid. *If the writ is refused, the rights of an inventor in a divisional application will, for an indefinite period, remain uncertain, and the Patent Office will not know how to proceed in such applications.*"**

*With respect to Senate Bill S. 475, providing for a single Court of Patent Appeals. A printed copy of the testimony has been filed with the Clerk; the above quoted statement appears at p. 119.

**Emphasis ours throughout.

Moreover, respondent's contention is based on the assumption that the Patent Office violated its own rules and practice in allowing the Warth divisional patent. Obviously it did not, since the divisional patent was issued after an interference in which the divisional patent application was deliberately given the benefit of the 1927 filing date of the parent patent (R., p. 864) as well as the benefit of the filing date of the 1930 divisional application. From that 1930 application the later 1933 application resulting in the divisional patent was carved. Warth might have amended the 1930 application instead of filing the 1933 division, but that he did not is immaterial, since the division was no more than an amendment of the 1930 application.

> "It is now settled law * * * that a divisional application is no more than an amendment of the parent application." *Dwight and Lloyd* v. *Greenawalt*, 27 Fed. (2d) 823, 831 (C. C. A. 2nd).

Respondent contends that Warth's 1933 application should not have been accorded by the Patent Office the filing date of his 1930 application, containing a disclosure of the invention of the divisional patent, because the 1930 application contained no *claims* to the divisional patent method. But this contention completely overlooks the fact that the 1930 Warth application, filed before the parent patent issued, was in every respect the legal equivalent of the parent application considered by this Court in *Chapman* v. *Wintroath*, 252 U. S. 126. In the Chapman case the parent application disclosed the invention in controversy, *but did not claim it.* A division was filed six years after the filing of the parent case claiming the invention and the division was accorded the filing date of the parent case. That is exactly what the Patent Office has done for over fifty years and did in the case at bar. The Patent Office simply accorded Warth's 1933 application the benefit of the filing date of the co-pending 1930 application which disclosed, but did not claim, the invention in issue and also the benefit of

the parent patent filing date (1927); since with the latter the 1930 case was co-pending.

The case of *Fessenden* v. *Wilson*, 48 Fed. (2d) 422 cited by respondent (Br., p. 18) obviously is not in point. Fessenden filed no application disclosing the subject-matter before his alleged parent patent issued. Hence, the Court held that when the patent issued, there was "nothing left pending before the Patent Office upon which it could act or to which the latter application could attach." In other words, there was no continuity of disclosure pending before the Patent Office. Here, Warth did file his 1930 application, to which the 1933 application attached, before his parent patent issued.

II.

The District Court Found that There Were No Adverse Intervening Rights and the Finding Was Not Disturbed by the Court of Appeals Although Respondent Urged that it Was Error.

Respondent agrees with the interpretation of *Webster* v. *Splitdorf* by the Circuit Court of Appeals for the First and Sixth Circuits, since it states (Br., p. 20) that unless the Circuit Court of Appeals for the Second Circuit found as a fact that there were intervening rights, "it would not have reversed the District Court and applied the doctrine of *Webster* v. *Splitdorf*." Respondent then argues that, although the Court of Appeals referred to no intervening rights, the record shows facts which establish such intervening rights by respondent and others.

The Court should not be misled by this attempt to raise issues of fact already decided in favor of petitioner. *Every argument advanced by respondent in support of its contention that the record shows intervening rights was expressly considered and rejected in the opinion of the District Court, whose findings were not disturbed by the Court of Appeals.* Yet, as pointed out in the petition (footnote p. 3), respon-

dent urged before the Court of Appeals that these findings were error.

Respondent contends (Br. p. 20) that machines purchased by it in September, 1928, December, 1928, March, 1929, and April, 1929, had the preheating* method of the divisional patent; these machines are covered by respondent's Exhibit Q (R., pp. 1102-1103). In rejecting this contention the District Court said (R., 2100):

> **"* * * the defendant has not proved any use of the preheating method, to anticipate the filing date of the first divisional application, November 7, 1930, or the filing date of the second divisional application, April 4, 1933."**

This finding of the District Court was not disturbed by the Court of Appeals, which based its holding of invalidity *solely* upon (1) the issuance of the Johnson patent less than a year before the divisional application was filed and (2) the issuance of the Warth parent patent which contained no description of the preheating method. This was done notwithstanding respondent's argument that the finding quoted above was in error.

This court has repeatedly held that questions decided by a master or a trial court on conflicting evidence and involving the credibility of witnesses will not be reviewed if there is a basis, as here, for such findings. Respondent is attempting to anticipate by prior use the filing date of the Warth divisional patent, although the District Court has held that it did not establish prior use or adverse intervening rights. Consequently, respondent's contention is completely answered by the ruling of this Court in *Adamson* v. *Gilliland*, 242 U. S. 350, 353:

> "Considering that a patent has been granted to the plaintiff the case is preeminently one for the applica-

*"Preheating" is used in the decisions below and by both parties to distinguish the divisional (1,967,195) patent from the parent patent (Reissue 19,117).

> tion of the practical rule that so far as the finding of the master or judge who saw the witnesses 'depends upon conflicting testimony, or upon the credibility of witnesses, or so far as there is any testimony consistent with the finding, it must be treated as unassailable' (citing) *Davis* v. *Schwartz,* 155 U. S. 631, 636.''*

Obviously the Court of Appeals would have reversed the finding of the District Court that there were no intervening rights had it regarded that finding in error, as contended by respondent. That the Court of Appeals deliberately refrained from disturbing the finding of the District Court is clear not only from the fact that the issue of intervening rights was argued and briefed on appeal, but also from the fact that the precise questions raised by the petition were presented by petition for rehearing which was denied.

III.

The District Court's Finding of No Intervening Rights is Clearly Supported by the Record.

Respondent admits (Br., p. 20) that two machines which it purchased in July and August, 1928, did *not* have the ''preheating'' invention of the divisional patent. The District Court so found (R. 2099, 2100). Respondent's Vice President testified that the spotting mechanism in the machines (Exhibit Q) purchased later in 1928 and in 1929 ''*was the same as on the previous machine*'' (R., 289, Q. 93). Yet the ''previous machine'' is the August, 1928, machine which respondent admits and the District Court found did not have the preheating invention of the divisional patent. Respondent's witness Johnson so testified (R., 238, 239). Consequently, according to defendant's own testimony,

---

*The cases are uniform to the effect that this court accepts a finding by a trial court or a master made from contrary evidence involving the credibility of witnesses where the finding has not been disturbed by the Appellate Court. See: *United States* v. *United Shoe Machinery Co.*, 247 U. S. 32, 37, 41; *Mason* v. *United States*, 260 U. S. 545, 556; *Cramer* v. *United States*, 261 U. S. 219, 226.

these September and December, 1928 and the 1929 machines did not have the divisional patent invention since they are conceded to have been like the earlier 1928 machines which did not.

It is preposterous, therefore, in the face of these direct admissions by respondent's own witnesses, for respondent now to assert that the record shows what the District Court held it does not show, and what the Court of Appeals refused to find in the face of respondent's contentions that the finding of the District Court should be reversed. Obviously, such an unfounded assertion is no adequate answer to the petition.

Respondent also refers (Br., pp. 23, 24) to certain machines which petitioner had Johnson build on special order for petitioner's Canadian plant. It is difficult to see how manufacture for petitioner and use by the latter can create an adverse intervening right against petitioner's divisional patent. The District Court held that it did not, saying (R., 2099):

> "The fact that Johnson, in 1929, built some machines for the plaintiff on special order for plaintiff's own use, does not affect the validity of the Warth patents, and does not anticipate a divisional application. (Citing) *American Chain Co.* v. *Franklin New York Co.*, 34 Fed. (2d) 551-555."

This finding was not disturbed by the Court of Appeals and was in accord with the ruling of the Circuit Court of Appeals for the Sixth Circuit in *Wirebounds Patent Co. et al.* v. *Saranac*,* 37 Fed. (2d) 830 (Petition p. 23), that

*The ruling of the Court of Appeals for the Sixth Circuit on the method patent discussed in this decision was not reversed by the Supreme Court as suggested by respondent (Br. p. 29). On the contrary the patent again came before the Court of Appeals which stated that the Supreme Court had not passed thereon and (65 F. (2d) 905) that *Webster* v. *Splitdorf* applies only when there is delay of more than two years after issuance of a patent to another and when the claims presented are broader than those originally sought in the parent application.

use by a patentee does not invalidate a divisional patent, since it is not an adverse use.

Finally respondent refers (Br., p. 22) to certain papers in the Patent Office records as indicating sale by Johnson of some sixteen apparatus and respondent asserts that these apparatus embodied the divisional patent invention. This assertion also is contradicted by the undisturbed finding of the District Court which said (R., p. 2100):

> "There is no evidence to show that the Johnson machines sold to others than plaintiff and identified on the list had a preheater * * *."

IV.

Respondent's Assertion that Petitioner Had Knowledge of Intervening Rights is Contradicted by the Record and the Undisturbed Finding of the District Court.

The unsupported assertion (Resp. Br., p. 22) that petitioner had knowledge of prior use of the divisional patent invention is contradicted not only by the undisputed testimony of petitioner's Vice-President (R., pp. 683; 685; 689) that petitioner had no such knowledge prior to filing the divisional patent application, but also by the finding of the District Court (R., p. 2101):

> "As soon as it came to Warth's attention that any one else was claiming the invention he, *being unaware of what methods others were using, and having no knowledge of defendant's using the preheating method*, proceeded as the statutes permitted, and in accordance with the practice recognized by the Patent Office and the courts. *Overland Co.* v. *Packard Co.*, 274 U. S. 417.
>
> In making the claims to the preheating step Warth was covering what he had invented, without any intent to expand his disclosures to cover later methods which had come to his attention. This has been approved by the courts. *Carson* v. *American Smelting and Refining Co.*, 4 Fed. (2d) 463, 470; *Remington Cash Register Co.* v. *National Cash Register Co.*, 6 Fed. (2d) 614; *Overland Co.* v. *Packard Co., supra.*"

Clearly, therefore, there is no showing of intervening rights or any issue of fact with respect thereto, since the District Court expressly found to the contrary and its findings were not disturbed by the Court of Appeals, although respondent urged they were error.

V.

The Subject-Matter of the Divisional Patent No. 1,967,195 Was Not Dedicated to the Public or Abandoned (Resp. Br. p. 12).

Respondent contends that because the specific reference to the creation of heat by preheating the cork was cancelled from the specification of the parent patent the method was abandoned. The District Court rejected this contention also, saying (R., 2095):

> "It is true as contended by the defendant, the description of preheating which was originally contained in this application was cancelled by amendment, on December 3, 1930, but it is also true that at the time this description of the 'preheating' procedure was cancelled, Warth had on file a divisional application, Serial No. 494,201 which had been filed on November 7, 1930, *prior to the date of cancellation of the descriptive matter from the parent case.* From this divisional application, a second division Serial No. 664,410, was filed on April 4, 1933, containing precisely the three claims in suit and the patent issued, after an interference on this application. Therefore, Warth had in the Patent Office a complete disclosure of this preheating, from January 7, 1927, when the parent application was filed, until April 4, 1933, when the application resulting in Warth Patent No. 1,967,195 in suit was filed. *The subject matter was not abandoned, as suggested by defendant, but was specifically reserved by continuous inclusion in the divisional application, and later in the second division.* This has been approved *and is the usual practice. Writer* v. *Kiwad*, 63 Fed. (2d) 259."

The above finding was not modified by the Court of Appeals. Moreover, the respondent's argument for abandon-

ment overlooks the fact stated in the appendix to the brief accompanying the petition (p. 32), that when the specific reference to creating heat by preheating the cork was cancelled, there was substituted the *broader* expression which includes preheating, namely, that the invention is "*to utilize at the time of assembly both heat and pressure to unite the spot to the cork.*" (R., p. 714, l. 47.) It is not denied that the District Court correctly held (R., 2081) that "the sole purpose of preheating the cork * * * is to create heat which will be available at the instant the spot is deposited," *i. e.*, at the time of assembly. Certainly, the substitution of the broader statement (use of heat) for the specific (use of heat obtained by preheating the cork) which is included within the broad, should not be interpreted as an intent to abandon the specific.

It is evident, therefore, that the patentee adopted the only procedure possible in order to avoid any inference of abandonment, namely, (1) he cancelled the subject-matter so that it would not appear in the issued patent as an unclaimed part of its disclosure, (2) he substituted a *broader* statement when he cancelled the specific explanation of the way heat should be produced, and (3) he embodied the preheating description in a divisional application filed before the cancellation of the disclosure from the parent application.

Respondent contends (Br., p. 15) that the divisional patent application filed in 1933 is not entitled to either the filing date (November, 1930) of the application filed before the parent patent issued or to the 1927 filing date of the parent patent, notwithstanding the fact that the disclosures of the three applications were identical.

Respondent's first reason (Br., p. 15) is that, when the parent patent issued, its file showed that the description of preheating had been cancelled. But this contention overlooks the fact that before cancellation of the specific disclosure the same had been embodied in the divisional application filed in November, 1930. This is the only way an

applicant can reserve matter cancelled from a pending application.

Respondent's second argument for abandonment is that the 1933 divisional application should not be given the filing date of the 1930 application, and, therefore, cannot attach through the latter to the 1927 case. This argument is based upon the statement that the 1930 application did not *claim* a method but merely the strip material used in the method. The contention completely overlooks the express ruling of this Court in *Chapman* v. *Wintroath* that it is immaterial whether the invention of a divisional application be *claimed* in a parent application. Moreover, although the 1930 application contained only a disclosure and not a claim to the method, the specification states at the outset (R., 1949):

> "This invention relates to a method of producing closures of the type in which a sealing disc has a facing.
>
> This application is a division of my copending application, Serial No. 159,743, filed January 7, 1927."

The specification of the 1930 case is a copy of the parent application filed in 1927. It is thus apparent that Warth, instead of abandoning the specific preheating disclosure cancelled from the parent application, expressly reserved the same by embodying the identical description in the 1930 divisional case. The District Court so found and the Court of Appeals did not disturb the finding, although respondent urged error.

VI.

The Petition Raises No Question of Fact as to the Parent Warth Patent Reissue 19,117.

It is not correct, as alleged by the respondent (Br., p. 12), that the petition asks this Court to review the finding of non-infringement by the Court of Appeals. The reissue patent is involved only collaterally in the second question presented. The petition does not present the issue of in-

fringement. It raises only the question whether, in view of the *apparent* scope of the claims reasonably believed by the petitioner to dominate broadly the more specific invention of the divisional patent, petitioner is entitled to the benefit of such apparent scope as an excuse for the delay in presenting the more specific claims in the divisional patent. Whether the Court of Appeals was right or wrong in reading a limitation into the claims of the reissue, is not raised by the petition. The sole issue in the second question is whether the petitioner showed lack of diligence in failing to anticipate that the limitation would be incorporated in the claim by construction.

Here, we simply emphasize that *respondent has not disputed the facts on which the second question is based,* namely:

1. That the Court of Appeals *did* read into the reissue patent claims a limitation (heated plunger) which was not a part of the originally filed disclosure, and hence could not have been an essential or claimed part of the invention since an applicant cannot claim specifically anything which is not originally described. (*In re Mraz,* 36 App. D. C. 435.)

2. That the parent patent claims on their face are reasonably susceptible to an interpretation dominating the divisional patent subject-matter, as held by the District Court and

3. That petitioner reasonably relied upon the claims as covering broadly the divisional patent subject-matter.

Obviously, therefore, the petition presents no issues of fact or question of infringement involving the parent (reissue) patent. That patent is involved solely on points of law based on the above undisputed facts, as explained in the petition (pp. 7-9) and in the brief (pp. 26-28).

The decisions cited by respondent on the question of excuse (Resp. Br., p. 29) are not in point, since they relate

solely to the question of "inadvertence, accident or mistake" which must be shown in support of an application for a reissue patent. There were no facts involved in any of the cases cited comparable to those here presented, and, therefore, the decisions do not conflict with the ruling of the Circuit Court of Appeals for the Sixth Circuit in *Wagenhorst* v. *Hydraulic* (Pet. pp. 8, 26) to the effect that delay in presenting specific claims in a divisional application may be excused by the reasonably apparent broad scope of claims in a parent case, regardless of the finally determined scope of such claims.

Respectfully submitted,

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Petitioner.

BLANK

PAGE

FILE COPY

Office Supreme Court, U. S.
FILED
NOV 22 1937
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States

No. 72

OCTOBER TERM 1937

CROWN CORK & SEAL COMPANY, INC., *Plaintiff-Petitioner,*

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent.*

BRIEF FOR PLAINTIFF-PETITIONER.

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER.
Counsel for Plaintiff-Petitioner.

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

BLANK

PAGE

TABLE OF CONTENTS.

	Page
OPINIONS OF THE COURTS BELOW	1
JURISDICTION	1
STATEMENT OF THE CASE	2
The Manufacture of Center Spot Crowns	2
The Warth Patents in Suit	3
The Warth Patent Reissue 19,117, March 20, 1934	4
The Warth Divisional Patent No. 1,967,195, July 17, 1934	5
The History of the Applications for Warth's Parent and Divisional Patents	7
The Decisions of the Lower Courts	10
Grounds Upon Which the Circuit Court of Appeals Decision is Based	10
SPECIFICATION OF ERRORS	13

ARGUMENT

CHAPTER I—THE QUESTION OF LACHES.	
Point I. The Court of Appeals Should Have Accorded the Warth Divisional Patent the Benefit of the Filing Date of the Second (1930) Application and Also of the Filing Date of the Original Warth Application Under the Rule Established by this Court in *Chapman* v. *Wintroath*, 252 U. S. 126.	14
Point II. In the Absence of Intervening Rights More Than Two Years Before Claims Are Presented in a Divisional Application, No Excuse for Delay is Required by the Decision of this Court in *Webster* v. *Splitdorf*, 264 U. S. U. S. 463	16
Point III. Petitioner's Own Use of the Warth Divisional Patent Invention Does Not Invalidate the Patent	22

Page

CHAPTER II—THE QUESTION OF EXCUSE FOR DELAY.

Point IV. If Warth's Delay in Specifically Claiming Preheating Requires an Excuse, it is Found in the Fact that the Parent Patent Claims (*a*) Do, in Fact, Cover and (*b*) Were Reasonably Believed to Cover the Subject Matter of the Divisional Patent Claims 24

A. It is Sufficient Excuse that the Parent Patent Claims Do Cover Generically the Preheating Method of the Divisional Patent 26

1. The language of the parent patent claims clearly covers applying heat *to the spot* by *either* a heated punch or a heated cork cushion 27

2. The file of the parent patent shows that no amendments were made which justify reading into the claims the "heated punch" limitation 29

3. The Court of Appeals' construction of the claims is inconsistent with the evident intent of the patentee and deprives him of protection for his actual invention 31

B. It is Sufficient Excuse that Warth Reasonably Believed that the Parent Patent Claims Cover the Subject Matter of the Divisional Patent Claims and Acted in Accordance With that Belief 33

Summary as to Excuse for Delay 34

Point V. The Grant of the Divisional Patent is Not Inconsistent with a Broad Interpretation of the Parent Patent Claims 36

Page

Point VI. The Court of Appeals Should Have Found that Respondent Infringes the Claims of the Warth Parent Patent 37

CONCLUSION 39

APPENDIX.

Petitioner's Old "Slide" Machine 41

The Warth Method and Slide Machine Differ Essentially 41

U. S. C., Title 35; Sec. 52 (R. S. Sec. 4904) 43

Rule 96—Rules of Practice in the United States Patent Office 43

U. S. C., Title 35, Sec. 31 (R. S. Sec. 4886) 44

U. S. C., Title 35, Sec. 33 (R. S. Sec. 4888) 44

Claim 35 (R., p. 925) of the Johnson Application 45

Utah Radio Corp. Products Co. v. Boudette, (C. C. A. 1st), 78 F. (2d) 793 45

Wagenhorst v. Hydraulic Steel (C. C. A. 6th), 27 F. (2d) 27, 29 46

Wirebounds Patents Co. et al. v. Saranac, (C. C. A. 6th) 37 F. (2d) 830, 840, 841 47

Wirebounds Co. v. Saranac (C. C. A. 6th), 65 F. (2d) 904, 905, 906 48

Hopfelt v. Read, 1903 Commissioner's Decisions, 319, 320, 321 48

Von Recklinghausen v. Dempster, 34 App. D. C., 474, 476, 477 49

Forbes v. Thomson, 1890 Commissioner's Decisions, 61, 63 49

TABLE OF CASES CITED.

Page

Adamson v. Gilliland, 242 U. S. 350, 353 ..... 18*
Agawam Company v. Jordan, 74 U. S. 583, 607-608 .... 22*
Altoona v. American Tri-Ergon, 294 U. S. 477, 487 ..12, 31*
American Chain Co. v. Franklin New York Co., 34 F. (2d) 551, (E. D. N. Y.) 22
American Laundry Mchy. Co. v. Prosperity Co., 295 Fed. 819 (C. C. A. 2) 22
Carson v. American Smelting & Refining Co., 4 F. (2d) 463, 470 (C. C. A. 9) 24
Chapman v. Beede, 296 Fed. 956, 959 (App. D. C.) 35
Chapman v. Wintroath, 252 U. S. 126 .....9*, 14, 15, 16, 18, 20, 23, 35
Dilg, *In re*, 25 App. D. C. 9, 11 .....28, 31
Elizabeth v. Pavement Company, 97 U. S. 126, 137 ....22*
Folberth Co. v. Mayo Co., 292 Fed. 883, 894, (D. C. N. D. Ill.) 16*
Forbes v. Thomson, 1890 Com. Dec., 61, 63 49
Galliher v. Cadwell, 145 U. S. 368, 372, 373 21
General Talking Pictures v. Western Electric (No. 357) 22
Hartford-Empire Co. v. Nivison-Weiskopf Co., 58 F. (2d) 701 (C. C. A. 6) 24, 25
Hopfelt v. Read, 1903 Com. Dec. 319, 321 10
Joy v. Morgan, 295 Fed. 931, 935, 936 ..... 22*
Kendall v. Winsor, 62 U. S. 322, 328-329 ..... 22*
Keystone v. Adams, 151 U. S. 139, 144, 145 ..... 31*
MacLaren v. Stoetzel, 38 F. (2d) 125, 128, 129, (C. C. P. A.) 25
McGrath v. Burke, 12 F. (2d) 161, 162 (App. D. C.) .. 25
Overland v. Packard, 274 U. S. 417 .....14, 15, 20
Smith v. Hall, 301 U. S. 216, 220 .....12*, 31*
Smith v. Snow, 294 U. S. 1, 11, 14 .....12*, 31*
Smith et al. v. Sprague, 123 U. S. 249, 250 .....10, 14
United States v. American Bell Telephone Co., 167 U. S. 224, 247 .....15, 19
Utah Radio Products Co. v. Boudette, 78 F. (2d) 793, 799 (C. C. A. 1) 17
Von Recklinghausen v. Dempster, 34 App. D. C. 474, 476, 477 .....14, 49
Wagenhorst v. Hydraulic Steel (C. C. A. 6) 27 F. (2d) 27 .....17, 25
Webster v. Splitdorf Co., 264 U. S. 463 .....11, 13, 16, 17, 18, 20, 21, 24

Page

Wirebounds Co. v. Saranac (C. C. A. 6) 65 F. (2d) 904, 905, 906 17
Wirebounds Patents Co. et al. v. Saranac (C. C. A. 6), 37 F. (2d) 830, 840, 841 ..... 17, 22
Writer v. Kiwad (C. C. P. A.), 63 F. (2d) 259 ..... 8, 36

STATUTES AND PATENT OFFICE RULE CITED.

U. S. C., Title 28, Sec. 347 1
U. S. C., Title 35, Sec. 31 (R. S. Sec. 4886) ... 11, 15*, 16, 17, 19*, 20, 22, 23
U. S. C., Title 35, Sec. 33 (R. S. Sec. 4888) 23*
U. S. C., Title 35, Sec. 52 (R. S. Sec. 4904) 8*, 35
Patent Office Rule 96 ..... 8*

*Footnote.

BLANK

PAGE

IN THE

Supreme Court of the United States

No. 72

OCTOBER TERM 1937

CROWN CORK & SEAL COMPANY, INC., *Plaintiff-Petitioner*,

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent*.

BRIEF FOR PLAINTIFF-PETITIONER.

OPINIONS OF THE COURTS BELOW.

The opinion of the Circuit Court of Appeals is reported in 86 F. (2d) 698, and will be found in this record at Volume III, pp. 1830, 1834.

The opinion of the District Court is reported in 14 Fed. Supp. 255, and will be found in this record at Volume III, pp. 1767, 1784, 1796.

JURISDICTION.

This case is here on a writ of certiorari to the Circuit Court of Appeals for the Second Circuit under the provisions of United States Code, Title 28, Section 347. The writ was granted on October 11, 1937.

STATEMENT OF THE CASE.

This is a patent suit brought by petitioner to enjoin infringement of two[1] Letters Patent, namely, Warth Reissue Patent No. 19,117, dated March 20, 1934 (R. p 547), hereinafter identified as the "parent" patent, and Warth patent No. 1,967,195, dated July 17, 1934 (R. p. 552), hereinafter identified as the "divisional" patent.

The patents cover methods for applying a small disc of foil or paper, known as a "center spot", to the cork cushion discs of crown caps used for sealing high pressure beverages, such as beer and ginger ale. The center spot is united to the cork disc by a thermoplastic (heat softenable) adhesive, such as gutta percha.

The center spot protects the cork cushion from the sealed liquid in the manner illustrated in the opposite sketch. The spot must be centered so that its edge extends over only a portion of the width of the bottle lip, thus leaving the cork around the spot exposed for direct engagement with the lip. Exact centering of the center spot is essential to insure uniform sealing engagement of the outer edge of the lip directly with the cork around the lip, and also uniform engagement of the inner edge of the lip with the center spot to protect the sealed beverage from the cork.

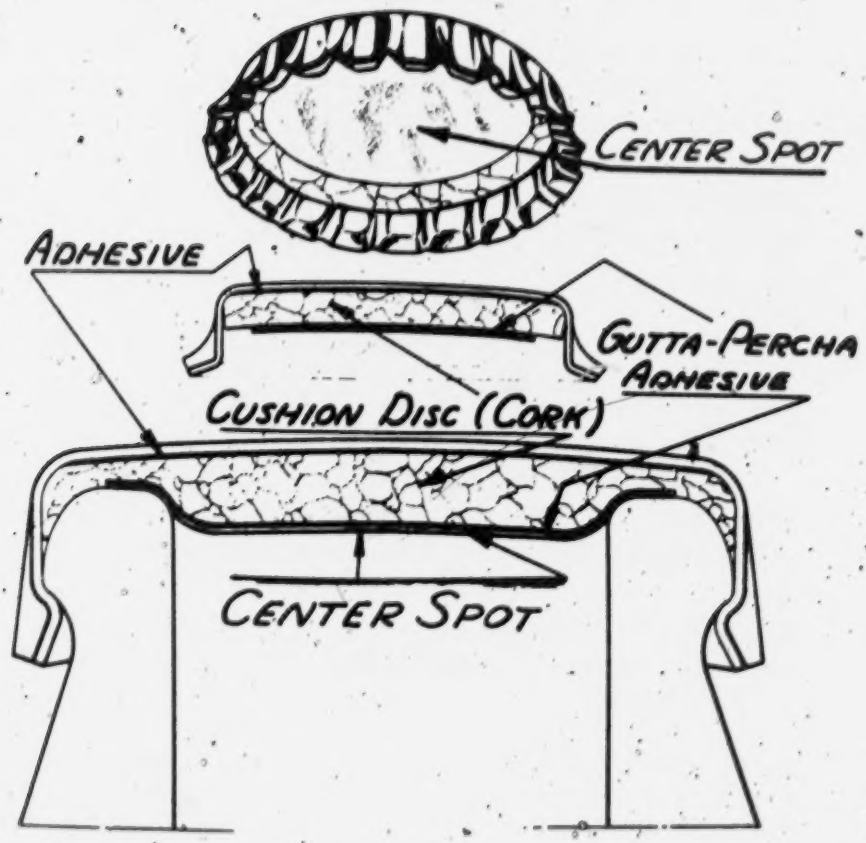
The Manufacture of Center Spot Crowns.

Closures having center spots adhesively united to the cushion disc had been known for years prior to the inventions in suit, but, aside from petitioner's own manufacture by its so-called "slide" machine,[2] no success had attended efforts to manufacture such a closure commercially. The problem was to adhere the spot securely at *high speed* and *accurately center it;* otherwise, the crown could not be sold in competition with other closures. An impermanently or

[1] Three other patents before the Court of Appeals are not involved here.

[2] Described in the Appendix, pp. 41, 42.

CENTER SPOT CROWN CAP



BLANK

PAGE

inaccurately-centered spot results in spoilage of the bottle contents.

Attempts had been made to adhere center spots with liquid-softened adhesives, but without success.[3] Experienced inventors had worked for years in developing and patenting machinery, but abandoned their efforts after admitted failure (R. pp. 129, 130, 344, 355).

As early as 1917, petitioner began manufacture of center spot crowns by the use of gutta percha, a thermoplastic adhesive. It used its so-called "slide" machine which was able to produce only from fifty to sixty closures a minute (R. p. 371).

This cumbersome machine presented many difficulties (R. pp. 370, 371) and the machines were subjected to continuous experiments (R. p. 371) over a period of about eight years. They were scrapped when the Warth method was developed.

The Warth Patents in Suit.

These patents disclose the method which has been used by petitioner since at least as early as 1927 (R. p. 1802) and which, as the District Court found (R. p. 1785), enabled petitioner to increase its production from less than *sixty* closures per minute for each unit by the old slide machine, to over *five hundred* closures per minute for each unit employing the Warth method. The patents describe the only method used today in the manufacture of crowns (R. p. 68) in which a center spot is adhesively united to the cork.

---

[3] McManus patent No. 1,402,780 (R. p. 1177) and Alberti patent No. 1,401,300 (R. p. 1205). McManus was unable to manufacture at a speed higher than *forty* a minute (R. p. 344) and with about *ninety per cent defective closures.* Alberti's efforts never passed the experimental stage (R. p. 355). The District Court found (R. p. 1787) that "Men skilled in the art had long sought by various methods to accomplish what Warth teaches * *".

The Warth Patent Reissue 19,117, March 20, 1934.

This patent discloses Warth's generic method which briefly is as follows: He positions a strip of spot material coated with non-tacky thermoplastic adhesive immediately above a traveling line of crowns and beneath a punch. The descent of the punch cuts out a spot and carries it directly down against the cork disc of a crown, heat being supplied to the spot *upon or at the instant of its contact with the cork to soften and make the adhesive tacky.* In this way, heat and pressure are applied simultaneously to the spot at the instant of its assembly with the crown, thus insuring instantaneous adherence of the spot in its exactly-centered position. After such assembly and adherence, the crown moves to the next stage where again it may be pressed with a heated plunger. Then the spot is held under pressure while it is permitted to cool. Claim 3[4] of the reissue patent is typical of the two claims (1 and 3) in suit and describes the generic method in formal language.

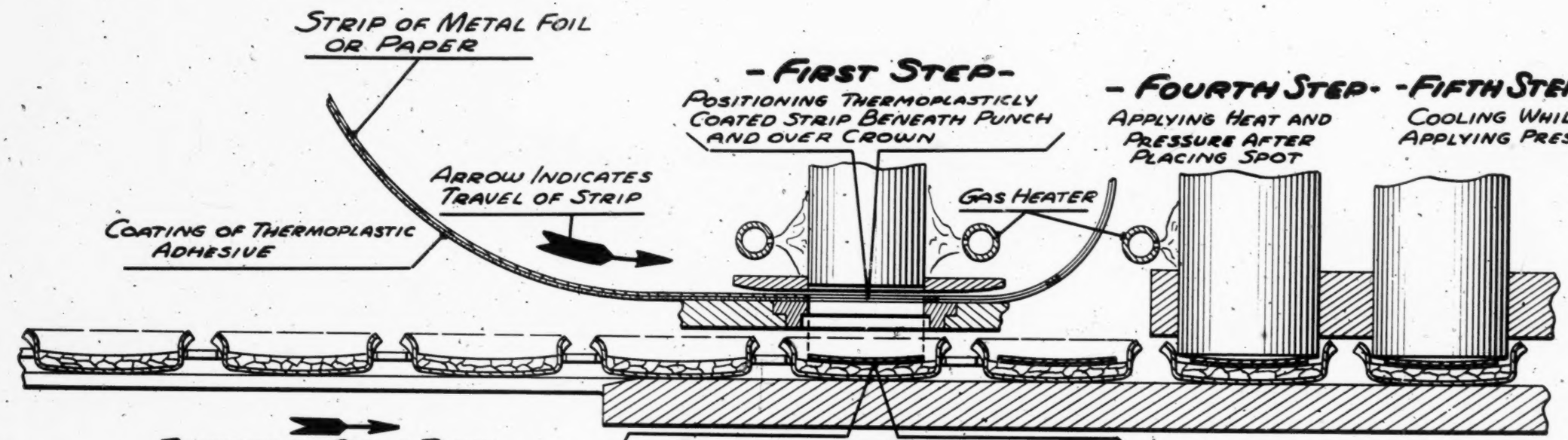
It will be noted that the claim does not specify any particular way of supplying the heat to the adhesive except that it must be supplied to the spot (1) simultaneously with pressure, and (2) "upon assembly", *i. e.,* at the instant the spot is deposited on the cork.

---

[4] The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

BLANK

PAGE


STRIP OF METAL FOIL OR PAPER
ARROW INDICATES TRAVEL OF STRIP
COATING OF THERMOPLASTIC ADHESIVE
DIRECTION OF CROWN TRAVEL
- FIRST STEP -
POSITIONING THERMOPLASTICLY COATED STRIP BENEATH PUNCH AND OVER CROWN
GAS HEATER
- FOURTH STEP -
APPLYING HEAT AND PRESSURE AFTER PLACING SPOT
- FIFTH STEP -
COOLING WHILE APPLYING PRESSURE
- SECOND AND THIRD STEPS -
EMPLOYING PUNCHING OPERATION TO
A - POSITION SPOT CENTRALLY ON CUSHION DISC AND
B - ADHERE SPOT TO DISC BY HEAT AND PRESSURE

BLANK

PAGE

While the specification as originally filed, had fully disclosed the Warth generic method and had suggested various instrumentalities suitable for performing that method, no drawing was originally filed. In the prosecution of the application, the Patent Office required a drawing (R., p. 1253) of some mechanism suitable for carrying out the invention and it was supplied. Since the invention being claimed was a method, Warth needed to show, and all that he did show was some suitable mechanism by which his method could be performed.

For applying both heat and pressure to the spot at the time of assembly, Warth selected and depicted in his drawing, merely for illustrative purposes, a simple heated punch as part of what he referred to as "a suitable mechanism".

The Warth generic method, as it would be carried out with this illustrated "suitable mechanism", is shown by the drawing opposite this page.

The Warth method is essentially different from that of the old slide machine which it superseded and, as the District Court said (R. p. 1790), the combination of steps in the Warth method are not "found in the plaintiff's first old slide machine".

A description of the slide machine and the essential differences between it and the Warth method, will be found in the appendix, pp. 41, 42.

The Warth Divisional Patent No. 1,967,195, July 17, 1934.

In the generically claimed method of the parent patent, there was no limitation as to the manner in which heat was to be gotten to the spot, so long as it was at the instant of assembly with the cork cushion and simultaneously with the application of pressure by the punch. On the contrary, Warth's divisional patent is directed to a *particular way* of applying the heat to the spot. The divisional patent is, therefore, related to the parent patent as a specie is to its genus.

The method described in the divisional patent is illustrated in the drawing opposite this page. The cork discs in the crown shells are heated from above by gas jets as they advance to the spotting punch. When the assembled crowns with their preheated corks reach the punch and a spot is punched out and pressed against a cork, the heat stored in the cork passes to the adhesive simultaneously with the pressing of the spot on the cork. Consequently, at the instant of assembly, the adhesive is made tacky and this, with the pressure, causes the adherence of the spot in its exactly centered position. Thereafter, the crown may be subjected to further heat and pressure and then is cooled under pressure as described in the parent patent.

This particular way of heating the adhesive has an advantage over other ways, such as the use of a heated punch, in that less careful control of the heat is required (R. p. 412).

The claims of the divisional patent, of which claim 3[5] is typical, are limited to this specific mode of heat application to the spot by the phrase "heating the pads in the caps". This language also distinguishes the claims of the divisional patent from those of the parent patent for Warth's generic invention, since the claims of the parent patent do not specify any particular method of applying the heat to the spot at the instant it is deposited.

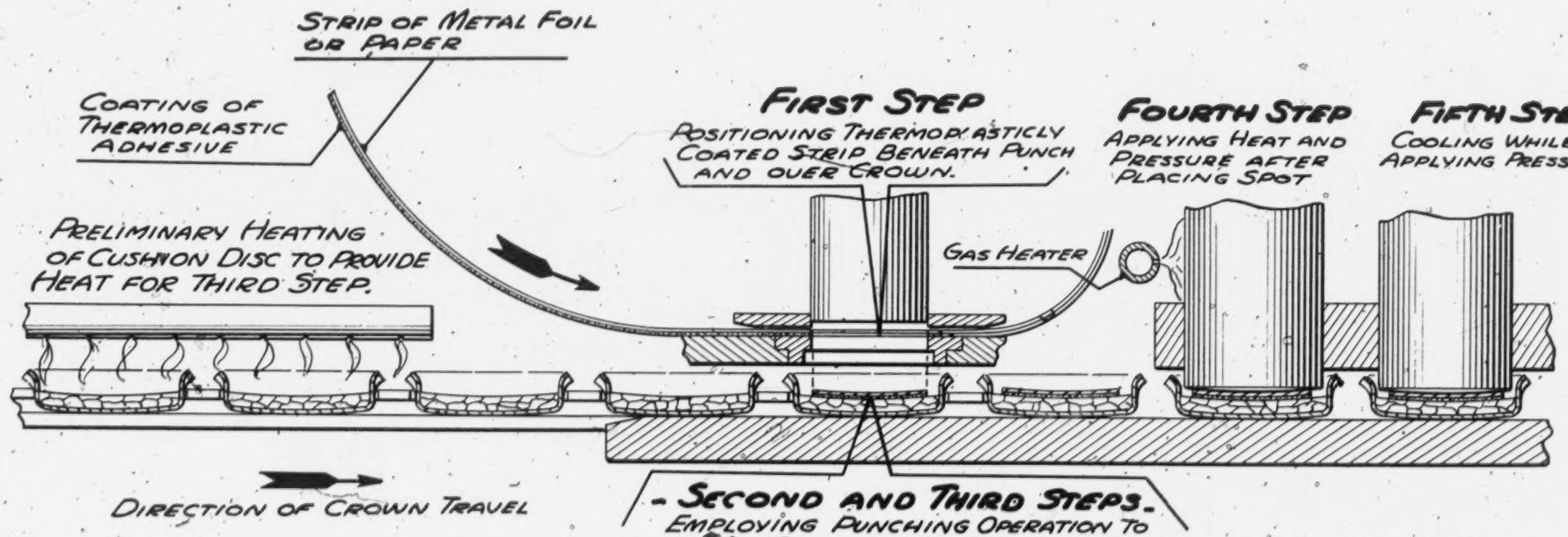
---

[5] The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, *heating the pads in the caps*, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

Emphasis ours throughout unless otherwise stated.

BLANK

PAGE


STRIP OF METAL FOIL OR PAPER
COATING OF THERMOPLASTIC ADHESIVE
PRELIMINARY HEATING OF CUSHION DISC TO PROVIDE HEAT FOR THIRD STEP.
FIRST STEP
POSITIONING THERMOPLASTICLY COATED STRIP BENEATH PUNCH AND OVER CROWN.
FOURTH STEP
APPLYING HEAT AND PRESSURE AFTER PLACING SPOT
FIFTH STEP
COOLING WHILE APPLYING PRESSURE
GAS HEATER
DIRECTION OF CROWN TRAVEL
- SECOND AND THIRD STEPS.
EMPLOYING PUNCHING OPERATION TO
A - POSITION SPOT CENTRALLY ON CUSHION DISC AND
B - ADHERE SPOT TO DISC BY HEAT AND PRESSURE.

BLANK

PAGE

The History of the Applications for Warth's Parent and Divisional Patents.

The parent patent (Re. No. 19,117) is a reissue of Warth patent No. 1,788,260, dated January 6, 1931, and filed January 7, 1927 (R. p. 1061). The propriety of this reissue is not questioned.

Admittedly the original application disclosed the preheating of the cork claimed in the divisional patent and the preheating disclosure was constantly before the Patent Office in the form of a pending application from the date of filing of the parent application until the issuance of the divisional patent here in suit.

On November 7, 1930, and while the original application was pending, Warth filed a second application (R. p. 1668) with a specification identical with that of the original application. *This second application described, but did not claim, the preheating invention of the divisional patent.* It was filed as a result of a Patent Office requirement (R. p. 1250) that another feature[6] of the original application disclosure be covered in a separate patent.

As has been said, Warth's parent application, as filed, had no drawing. While the application was pending, the Patent Office required Warth to file a drawing to illustrate devices by which his method could be carried out. He did this, electing to show, as a means for supplying the heat to the spot, a simple heated punch, thus describing *another* way of applying the heat to the spot in addition to his original description of preheating the cork.

At the time he filed this illustrative drawing Warth cancelled from his parent application, *but not from the second application which had already been filed,* the reference to preheating the cork and substituted the following broad statement as to the heating step of his method and as to the purpose of the newly-filed drawing (R. p. 1272, l. 11 *et seq.*):

[6] The thermoplastically-coated strip material used in the method.

> "The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material * * *.
>
> "In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched * * *".

The cancellation from the original specification of reference to preheating the cork, after having inserted it in a copending divisional application, was in accord with a customary practice, as the District Court said (R. p. 1800):

> "The subject matter was not abandoned, as suggested by defendant, but was specifically reserved by continuous inclusion in the divisional application, and later in the second division. This has been approved and is the usual practice. *Writer* v. *Kiwad,* 63 Fed. (2d) 259".

After the parent patent (1,788,260) issued on January 6, 1931, and while the second application was pending, a patent issued to one Johnson (No. 1,852,578, R. p. 575) with claims covering specifically the "preheating" step which Warth had described in his original application and which was described in his then still-pending second application.

The Patent Office should have placed Johnson's application (R. p. 676), *filed more than two years after Warth's original application,* in interference[7] with the Warth's original application by suggesting to Warth, Johnson's allowed claim 35[8] (R. p. 713, quoted in Appendix, p. 45). That

---

[7] U. S. C. Title 35, Sec. 52, (R. S. Sec. 4904) and Rule 96 of the Rules of Practice. (See Appendix, p. 43.)

[8] Suggestion of an allowed conflicting claim of a later applicant to an earlier applicant is the procedure under Rule 96 (Appendi p. 43) for declaring an interference. Claim 35 of the Johnson application had been allowed on September 10, 1930 (R., p. 717) several months before the Warth original application was allowed. The conflict between the parent Warth and Johnson applications is evident not only from the subsequent rejection of the Johnson

this claim read upon the Warth application disclosure is evident from (1) the subsequent rejection of Johnson's claim on the Warth parent patent after the latter issued (R. p. 725), and (2) the cancellation of the claim by Johnson (R. p. 726) in response to the rejection.

But only because the Patent Office overlooked the conflict between the two applications, no interference was declared. Consequently Warth had no knowledge, while his original application was pending, of Johnson's conflicting preheating claims which also stood allowed in the Johnson application. If an interference had been declared, then the issue of inventorship priority would have been determined while Warth's original application was still pending. Due to this oversight on the part of the Patent Office, Warth obtained no notice of the necessity for claiming preheating specifically until the Johnson patent later came to his attention. As soon as the Johnson patent came to Warth's attention, he copied[9] the Johnson preheating claims by filing on April 4, 1933, a division of his then-pending second application and obtained an interference in which the Patent Office held Warth to be the prior inventor.

Warth had broadly claimed the invention (R. p. 1835) in his parent patent application and had had continuously on file in the Patent Office, first in his original application and then

---

claim (35) on the Warth patent, but also from a comparison the Johnson claim (Appendix, p. 45) with the Warth patent claims, one of which is quoted p. 4 *ante*. This comparison shows that the two applicants were claiming substantially the same invention, the condition prescribed by the Statute and Rule (R. S. Sec. 4904 and Rule 96) for declaring an interference. The Johnson application had been pending in Division 14 (R., p. 714) and the Warth application (R., p. 1253) in Division 56, where it was endorsed for allowance (R., p. 1275), although it was transferred to Division 14 for the formal allowance (R., p. 1288).

[9] The Johnson patent claims were copied within a year after the Johnson patent had issued, and, therefore, within the two years allowed by *Chapman* v. *Wintroath*, 252 U. S. 126.

in his second application, a complete disclosure of the subject-matter covered by the interference claims. Because of this *continuity of disclosure by Warth,* the Patent Office gave the divisional application the benefit of the filing date of the second (1930) application, which disclosed but did not claim preheating, and through the latter the benefit of the filing date of the original application of which the second was admittedly a division. Accordingly the claims of the Johnson patent were awarded to Warth as the prior inventor and are now the claims of the Warth divisional patent here in suit.

This was all in accordance with the Patent Office practice as it has existed for over fifty years. The practice was recognized and approved by this Court as far back as *Smith et al.* v. *Sprague,* 123 U. S. 249, 250, and its propriety was reiterated by the Commissioner of Patents in *Hopfelt* v. *Read,* 1903 Commissioner's Decisions, 319, 321. See the quotation from the latter decision in the Appendix, p. 48.

The Decisions of the Lower Courts.

The District Court for the Eastern District of New York (Campbell, J.), found both patents valid and infringed. The Circuit Court of Appeals for the Second Circuit (Manton, J., dissenting) reversed the decree, holding that the parent patent was not infringed and that the divisional patent was invalid because of laches in filing the application.

Grounds Upon Which the Circuit Court of Appeals Decision is Based.

(1). Reversing the finding of the District Court (R. p. 1805) as to the divisional patent, the Circuit Court of Appeals held that the mere lapse of two years and four months between the grant of the parent Warth patent and the presenting of specific claims to preheating in Warth's divisional application, invalidated such claims in the absence of a legal excuse, *notwithstanding the fact that during this*

interval no intervening bar had arisen.[10] The subject-matter of the specific preheating claims had not been disclosed in any patent or publication, and had not been in public use by others for two years or more before the claims were presented and, therefore, there arose no bar to the divisional patent analogous to the bars created by the statute (R. S. Sec. 4886, Appendix, p. 44). The Court of Appeals said (R. p. 1837):

> "The disclosure, however, had been continuously on file since January 7, 1927; [the filing date of the parent patent] and so the plaintiff contends that it is entitled to that filing date. We do not so understand the law, as laid down in Webster Co. v. Splitdorf Co., 264 U. S. 463, 471, 44 S. Ct. 342, 344, 68 L. Ed. 792. Prima facie the two-year time limit applies to divisional applications, and an applicant who waits longer before claiming the invention disclosed in his application must justify his delay by proof of some excuse. No such excuse appears here."

(2). The Court of Appeals refused to excuse Warth's delay in presenting preheating claims (*a*) because it held that the parent patent claims are not broad enough to cover preheating and (*b*) because it declined to accept as an adequate excuse the fact that the claims of the parent patent *were intended and believed to be*, and *apparently* are, broad enough to comprehend in their scope the specific preheating

[10] The Court of Appeals referred to the issuance of the Warth parent patent more than two years before the divisional patent claims were asserted, but the parent patent contained no description of the method of the Warth divisional patent and hence was not a printed publication. The Court of Appeals also referred to the Johnson patent, but this issued less than a year before the claims were asserted by Warth and hence is not a bar under the rule of this Court in the *Chapman* case, *supra*. Respondent's use of the invention was also urged as being more than two years prior to the Warth divisional application, but was found by the District Court not to anticipate (antedate) the filing date of the Warth divisional patent (R., p. 1803) and this finding was not disturbed by the Court of Appeals, although respondent strenuously urged that such finding was error.

method. The Court of Appeals also disregarded the fact that Warth had maintained the disclosure of preheating continuously on file in a pending and regularly prosecuted application and had asserted his inventorship as soon as the Johnson patent came to his attention, and the further fact that Warth failed to receive actual notice of Johnson's claim to inventorship while the parent Warth application was pending because the Patent Office failed, through oversight, to declare an interference between the Warth and Johnson applications, as required by the Statute and the Patent Office Rule.

(3). In refusing to hold the Warth parent patent claims sufficiently broad to cover preheating and therefore to constitute an excuse for Warth's delay, the Court of Appeals read into and restricted the claims of the parent patent to the use of a "heated plunger" as a means for applying heat to the spot upon or at the instant of assembly. In this, the Court of Appeals did what this Court said in *Altoona* v. *American Tri-Ergon,*[11] 294 U. S. 477, 487, should not be done; that is, included in a claim "parts of the specifications, or of other claims, which the patentees failed to include in it", and it also disagreed with the District Court which had said (R. p. 1790-91):

> "The claims in suit are not limited to the application of heat directly to the punch, and they are not so limited by the drawing offered by Warth in the prosecution of his patent, simply for the purpose of illustrating a suitable means for effecting the simultaneous application of heat and pressure at the instant of depositing the spot.
>
> "The prior art did not, nor do I find anything in the records of the Patent Office actions which limit the claims in suit to producing in any particular way the heat which is utilized at the instant of assembly."

---

[11] Also in *Smith* v. *Snow,* 294 U. S. 1, 11; *Smith* v. *Hall,* 301 U. S. 216, 220.

SPECIFICATION OF ERRORS.

1. The Circuit Court of Appeals for the Second Circuit erred in holding that a two year time limit for presenting claims in a divisional application, as announced by this Court in *Webster Co.* v. *Splitdorf Co.*, 264 U. S. 463, is applicable in the present case and *in the absence of adverse public use, patenting or publication more than two years before the presentation of the claims.*

2. The Circuit Court of Appeals for the Second Circuit erred in ignoring the *apparent* and *intended* breadth of the claims in the parent patent and in not holding that, since these claims were **believed** and **intended** to be, and **apparently are**, of a breadth to cover the subject-matter of the divisional patent, the delay in presenting the claims in the divisional patent is excused.

3. The Circuit Court of Appeals erred in failing to find the parent patent claims sufficiently broad to cover preheating and to excuse the delay (because it read into the claims of the parent reissue patent a part of the specification which the patentee did not include in the claims) and in refusing to accept the claims as written, namely, to cover the application of heat at the instant of assembly whether it be applied (*a*) by a heated punch, as illustrated in the patent, or (*b*) by a heated cork cushion, as initially described in the application, or (*c*) partly by a heated punch and partly by a heated cork, as the method is practiced by both petitioner and respondent.

4. The Circuit Court of Appeals erred (a) in reversing the District Court which had adjudicated the patents in suit as valid and infringed; and (b) in issuing its mandate directing the said District Court to enter a decree dismissing petitioner's bill of complaint.

ARGUMENT.

Chapter I—The Question of Laches.

POINT I.

The Court of Appeals Should Have Accorded the Warth Divisional Patent the Benefit of the Filing Date of the Second (1930) Application and Also of the Filing Date of the Original Warth Application Under the Rule Established by this Court in Chapman v. Wintroath, 252 U. S. 126.

The refusal of the Circuit Court of Appeals to accord to the Warth divisional patent the priority rights of the original or even of the second (1930) application directly conflicts with the decision of this Court in *Chapman* v. *Wintroath*, 252 U. S. 126, and *Overland* v. *Packard*, 274 U. S. 417.

In *Chapman* v. *Wintroath, supra*, this Court reiterated the rule that a divisional application is entitled to the benefit of the filing date of the parent application "with all its priority of right" for anything disclosed in the parent application, whether claimed in the parent application or not. This Court said:

> "To this we must add that not only have later or divisional applications not been dealt with in a hostile spirit by the courts, but, on the contrary, designed as they are to secure the patent to the first discoverer, they have been favored to the extent that where an invention clearly disclosed in an application, as in this case, *is not claimed therein but is subsequently claimed in another application, the original will be deemed a constructive reduction of the invention to practice and the later one will be given the filing date of the earlier, with all of its priority of right.* (Citing) *Smith & Griggs Manufacturing Co.* v. *Sprague*, 123 U. S. 249, 250; *Von Recklinghausen* v. *Dempster*, 34 App. D. C. 474, 476, 477."

Following the decision in *Webster* v. *Splitdorf*, 264 U. S. 463, this Court said in the *Overland* case, *supra*, that the priority rights of a divisional application should not be diminished by equitable considerations. Interpreting the earlier *Chapman* v. *Wintroath* decision, this Court said (at p. 426):

> "This court held [in Chapman v. Wintroath] that under Sec. 4886 of the Revised Statutes, as amended March 3, 1897, two years was granted in such a case before the right to file a divisional application had been lost. *The Court based its decision that the statutory period could not be reduced by equitable considerations or those of public policy* on the language which we have just quoted from Mr. Justice Brewer in his opinion in the *Telephone* case."

Our understanding of the rule thus established is that **an applicant has two years from the date of any intervening adverse right, analogous to the bars established by the Statute,**[12] **in which to present claims to subject-matter disclosed in any parent or prior application, whether claimed therein or not.**

In the case at bar, there was no adverse public use or printed publication of the preheating invention of Warth's divisional patent more than two years prior to the date he presented the claims of that patent. In the *Chapman* case, the Court stated that, where a patent has issued to another more than two years before its claims are copied by a divisional applicant, the lapse of such period *prima facie* bars the divisional applicant. Such an earlier patent to another is an intervening adverse right and is analogous to the two year bar established by the statute.

But, in the case at bar, the Johnson patent issued less than a year before its claims were copied by Warth in his divisional application. Consequently, the Court of Appeals for the Second Circuit overlooked the admonition of

[12] U. S. C. Title 35, Sec. 31 (R. S. Sec. 4886). See Appendix, p. 44.

this Court in the *Chapman* case (p. 135) with reference to a patent such as Johnson's that:

> "Such a prior patent is in no sense a bar to the granting of a second patent for the same invention to an earlier inventor, provided that his application is filed not more than two years after the date of the conflicting patent. The applicant may not be able to prove that he was the first inventor but the statute gives him two years in which to claim that he was and in which to secure the institution of an interference proceeding in which the issue of priority between himself and the patentee may be determined in a prescribed manner."

Warth acted in compliance with the above rule, copied the Johnson claims within one year from the date his patent issued, and was awarded the claims as prior inventor. Moreover, Warth's parent patent, as issued, contained no description of the preheating step, and was not a printed publication. Such a patent has been held not to be a bar even when it contains a description of the divisional patent invention.[13]

POINT II.

In the Absence of Intervening Rights More Than Two Years Before Claims Are Presented in a Divisional Application, No Excuse for Delay is Required by the Decision of this Court in Webster v. Splitdorf, 264 U. S. 463.

In the case at bar, the Court of Appeals extended the ruling of this Court in *Webster* v. *Splitdorf* beyond anything justified by that or any other decision of this Court, since it formulated a bar to divisional patents which has no basis, as such or by analogy, in the fundamental statute (R. S. Sec. 4886—Appendix, p. 44).

In the *Webster* case, this Court simply applied the doctrine of *Chapman* v. *Wintroath* to a case in which interven-

[13] *Folberth Co.* v. *Mayo Co.*, 292 Fed. 883, 894 (D. C. N. D. Ill.).

ing adverse rights analogous to those established by the Statute (R. S. Sec. 4886) had arisen more than two years before the claims were presented.

The facts of the *Webster* case briefly were: The original application for the Kane patent in suit was filed February 2, 1910. In 1915, Kane filed a divisional application, in the prosecution of which, on June 17, 1918, claims were presented to subject-matter *deliberately* not claimed, either broadly or specifically, in the original application, because Kane considered their subject-matter one merely of design.

These claims were presented five years after a complete disclosure of their subject-matter appeared in an issued Podlesaks patent and an equal length of time after the device had been in general public use by others.

This Court found "that Kane did not originally intend to assert" the claims, that the claims were "*broader* than those originally sought" and "that the delay was unreasonable, and, under the circumstances shown by the record, constitutes laches" by which Kane lost his right to a patent on the subject-matter of the late-presented claims.

We do not understand that this Court held in *Webster* v. *Splitdorf,* as stated by the Court of Appeals in the case at bar, that, in *any* case where there has been a delay of more than two years in presenting claims in a divisional application, such delay, *even in the absence of adverse public use or intervening rights,* invalidates the patent unless excuse be shown.

Other Courts of Appeal have held that the doctrine of *Webster* v. *Splitdorf* applies only in the presence of intervening adverse rights. See the quotations in the Appendix, (pp. 45-48) from *Utah Radio Products Co.* v. *Boudette* (C. C. A. 1st), 78 F. (2d), 793, 799, *Wagenhorst* v. *Hydraulic Steel* (C. C. A. 6th), 27 F. (2d), 27, 29, 30, *Wirebounds Patents Co., et al.* v. *Saranac* (C. C. A. 6th), 37 F. (2d) 830, 840, 841, and *Wirebounds Co.* v. *Saranac* (C. C. A. 6th), 65 F. (2d) 904, 905, 906.

The facts in the case at bar are not analogous to those in the *Webster* case. While here there was a delay of more than two years in presenting the claims specific to preheating, *yet here there had been no adverse public use of the invention before or during the two year period.*[14]

Nor had there been any disclosure of the invention in an issued patent or printed publication, except the Johnson patent No. 1,852,578 (R. p. 575), which issued *only a year* before the claims were asserted, and, therefore, well within the two year period allowed for copying the Johnson claims under the *Chapman* case, *supra.*

Moreover, since the Court of Appeals found (R. p. 1835) that Warth had broadly claimed the subject-matter of the divisional patent during the pendency of his parent patent, there was no *deliberate* failure, as in the *Webster* case, to claim the subject-matter prior to claiming it specifically in the divisional application.

Further, Warth *believed* (p. 33, *infra*) he had covered the invention of the divisional patent by the claims issued in the parent patent. Certainly the claims of the parent patent are at least *apparently* of such breadth (pp. 26-36, *infra*) and it is petitioner's position that they are, *in fact,* of such breadth. The District Court so held (R., pp. 1791-92), but the Court of Appeals erroneously gave the claims a narrow construction, as discussed *infra,* p. 27, *et seq.*

In short, the Court of Appeals held that Warth's unintentional delay of two years and four months in claiming the preheating method specifically, *absent intervening*

---

[14] Respondent did attempt to prove use of preheating by itself and others more than two years prior to the divisional patent application, but the District Court held (R., p. 1803):

> " * * * the defendant has not proved any use of the preheating method, to anticipate the filing date of the first divisional application, November 7, 1930, or the filing date of the second divisional application, April 4, 1933".

This finding was not disturbed by the Court of Appeals, and, therefore, should be accepted by this Court under the rule of *Adamson* v. *Gilliland,* 242 U. S. 350, 353.

rights, is the equivalent of the eight year *deliberate delay and failure* to claim an invention, considered in the *Webster* case, where *public rights in the meantime had accrued.* On this finding, the Court of Appeals has denied Warth the benefit of the general rule that a divisional patent relates back to the filing date of its parent patent.

The error as well as the extreme harshness of the rule announced by the Court of Appeals is evident from the fact that it applies to divisional applications a two year time limit which is not imposed upon them by the fundamental statute.[15] The statute bars the allowance of a patent *only if there has been a printed publication, public use or sale of the invention more than two years before the filing date of the application.* The rule established by the Court of Appeals for the Second Circuit requires an excuse for delay and *prima facie* bars a patent, whether statutory bars, as such or by analogy, exist or not. The rule, as applied in the case at bar therefore, is in conflict with the statement of this Court in *United States* v. *American Bell Telephone Co.*, 167 U. S. 224, 247, that "No Court can disregard any statutory provisions in respect to these matters on the ground that, in its judgment, they are unwise or prejudicial to the interests of the public."

In the case at bar, aside from the admitted use of the invention by petitioner,[16] the District Court and the Court of Appeals found no use of the invention or public disclosure thereof more than two years before the filing of the divisional application.

Consequently, if the rule of the Court of Appeals is correct, a divisional application is not entitled even to the benefit of its own filing date if there has been a two-year delay in claiming its subject-matter. This is true since the District Court found (footnote p. 18; *ante*) that respondent had not proved prior use of the divisional patent invention and there was no contrary finding by the Court of Appeals.

---

[15] U. S. C., Title 35, Sec. 31, (R. S. Sec. 4886), Appendix, p. 44.

[16] See discussion, p. 22, *infra.*

To hold a divisional patent invalid in the absence of proof of prior use, as the Court of Appeals did in the case at bar, certainly diminishes the patentee's rights under the statute,[17] and is plainly inconsistent with the decision of this Court in *Overland* v. *Packard* (p. 15, *ante*).

The Court of Appeals found no statutory bars and refers only to the issuance of the parent Warth patent and to the issuance of the Johnson patent during the two year period. But the parent Warth patent, as issued, *contained no description of the preheating invention*, and hence was not a printed publication of the invention or an *adverse* patent or right. The Johnson patent issued *less than one year* before Warth presented the preheating claims, and hence is not a bar, under the decision of this Court in *Chapman* v. *Wintroath* (p. 14 *ante*).

In the *Webster* case, this Court drew an analogy between the two year period allowed (*Chapman* v. *Wintroath*) for presenting claims in a divisional application, and a two year limitation for filing application for a broadened reissue patent. In each case, however, there is a definite occurrence analogous to the bars created by the Statute (R. S. Sec. 4886), from which the two year limit begins to run.[18] **We submit that the two year period announced in the Webster case should begin to run only when there has been some adverse intervening right analogous to the statutory bars, and that on this theory the doctrine of laches announced in the Webster case is based.**

The reasonableness of requiring a showing of intervening rights from which to date the two year period of laches announced in the *Webster* case is apparent from the fundamental theory of laches explained by this Court in

---

[17] R. S. Sec. 4886, Appendix, p. 44.

[18] The issued patent from which the claims are copied is a printed publication; in applying for reissue the original patent is a printed publication. Therefore, each is one of the bars specified in R. S. Sec. 4886.

Galliher v. *Cadwell*,[19] 145 U. S. 368, 372, 373, with reference to cases decided on laches:

> "They proceed on the assumption that the party to whom laches is imputed has knowledge of his rights, and an ample opportunity to establish them in the proper forum; that by reason of his delay the adverse party has good reason to believe that the alleged rights are worthless, or have been abandoned; and that because of the change in condition or relations during this period of delay, it would be an injustice to the latter to permit him to now assert them.
>
> * * * *
>
> "They all proceed upon the theory that laches is not like limitation, a mere matter of time; but principally a question of the inequity of permitting the claim to be enforced—an inequity founded upon some change in the condition or relations of the property or the parties."

A reading of this Court's decision in the *Webster* case shows that the Court based its application of the doctrine of laches on the theory that one should not be permitted to expand his claim "to the detriment of those who have, in consequence, been led to act as though it were abandoned". (*Webster* v. *Splitdorf*, p. 467). Obviously, if there are no intervening rights, there can be no question of inequity or change in the condition or relations of any parties, especially where, as here, the inventor from his original filing date has asserted claims which he believed, and which apparently do, cover the divisional patent invention. See pp. 26-36 *post*.

---

[19] And in other decisions therein cited.

POINT III.

Petitioner's Own Use of the Warth Divisional Patent Invention Does Not Invalidate the Patent.

Respondent did not contend before the lower Courts, nor did either Court find, that petitioner's admitted use of the preheating invention for some years prior to the filing of the Warth divisional application invalidates the patent. However, we will refer briefly to this point since it is raised before this Court in the case of *General Talking Pictures* v. *Western Electric* (No. 357).

Courts which have considered the question have held that a divisional patent is not barred by use by the patentee or his licensees. See *Wirebounds Patents Co.* v. *Saranac*, 37 F. (2d) 830, 841 (C. C. A. 6); *American Chain Co.* v. *Franklin New York Co.*, 34 F. (2d) 551 (E. D. N. Y.); *American Laundry Mchy. Co.* v. *Prosperity Co.*, 295 Fed. 819 (C. C. A. 2).

A contrary interpretation of the law would largely nullify the spirit and intent of the fundamental patent statute (R. S. Sec. 4886—Appendix, p. 44). Under the statute an inventor may publicly use his invention for two years before filing patent application. The courts have frequently commended inventors for taking advantage of this statute by subjecting the invention to thorough test, even in commercial use, as is often necessary, instead of rushing into the Patent Office with disclosures of untried and unperfected developments, and the importance of this statutory provision to the general public, as well as to inventors, has been emphasized.[20]

If it were the law that an inventor's own use, or use authorized by him, more than two years before the filing of a divisional application bars the issuance of a patent, no inventor could safely make his invention available to the public either before or even after he had filed an application, until it became certain that it would not be neces-

---

[20] *Elizabeth* v. *Pavement Company*, 97 U. S. 126, 137; *Kendall* v. *Winsor*, 62 U. S. 322, 328-329; *Agawam Company* v. *Jordan*, 74 U. S. 583, 607-608; *Joy* v. *Morgan*, 295 Fed. 931, 935, 936.

sary or desirable for him to file any divisional application to protect part of his original application disclosure.

Frequently, the requirement or the desirability for filing divisional applications does not arise until years after the original application for patent has been filed. Such was the situation which confronted the inventor in *Chapman* v. *Wintroath, supra,* where it was six years after the Chapman application was filed before it became apparent to Chapman or his attorneys that a certain phase of his initial disclosure should be claimed. That phase Chapman had to claim in a divisional application. The statute[21] encourages and requires a complete disclosure and the completeness of the initial application disclosure is ordinarily the reason for the filing of subsequent divisional applications, since the Patent Office will not permit the claiming in a single patent of inventions which are separately classified.[22]

To hold that a patent is barred by the inventor's own public use more than two years before the filing of a divisional application would compel him to anticipate all possible requirements or reasons for divisional applications. The necessity for many divisional applications arises from events which cannot be foreseen, such as the inadvertent issuance of patents to another, as in the *Chapman* case and in the case at bar, or changing of the Patent Office classification of patents which is constantly being revised. Consequently, if it were the rule that use by the inventor more than two years before filing a divisional application is a statutory bar, the inventor and the public would be deprived of the benefits of the fundamental statute (R. S. Sec. 4886) which permits and encourages public use and test of inventions for two years prior to the filing of application for patent.

---

[21] U. S. C. Title 35, Sec. 33, (R. S. Sec. 4888) Appendix, p. 44.

[22] For example, in 1934 and 1935, the last years records which were maintained by the Patent Office, approximately every eighth applicant for patent was required to file divisional applications to protect his full disclosure. In 1934, examination of applications resulted in 7162 requirements for divisions and in 1935, 7609 requirements.

CHAPTER II—THE QUESTION OF EXCUSE FOR DELAY.

POINT IV.

If Warth's Delay in Specifically Claiming Preheating Requires an Excuse, it is Found in the Fact that the Parent Patent Claims (a) Do, in fact, Cover and (b) Were Reasonably Believed to Cover the Subject Matter of the Divisional Patent Claims.

This Court said in the *Webster* case that more than two years' delay in presenting claims after an intervening right had arisen may be excused "by special circumstances, which show it to have been not unreasonable". In the case at bar, the Court of Appeals said (R., p. 1837):

> "* * * an applicant who waits longer [than two years] before claiming the invention disclosed in his application must justify his delay by proof of some excuse. No such excuse appears here".

Lower Courts have heretofore recognized, as an excuse for delay, the fact that the claims in the parent patent do, in fact, cover the later-claimed divisional subject matter.

In the case at bar, the Court of Appeals recognized this law and correctly stated the ruling and the reason for it as follows (R. p. 1837):

> "Had Warth chosen to retain in his parent application broad generic claims which might cover the preheating method, then indeed the Splitdorf rule might not be applicable. Carson v. American Smelting & Refining Co., 4 F. (2d) 463, 470 (C. C. A. 9). The delay would be excused since a patentee is not to be held at fault for failing to have divided his claims at an earlier date, merely because he might have, when instead he had elected to prosecute the broader claims of his original application. Hartford-Empire Co. v. Nivison-Weiskopf Co., 58 F. (2d) 701, (C. C. A. 6)."

It has also been held that a *seeming* broad scope of parent patent claims and the inventor's belief that they were of a scope broad enough to cover the later-claimed divisional subject matter, *even though he was mistaken*, is an excuse for delay in presenting specific claims. In *Wagenhorst* v. *Hydraulic Steel* (C. C. A. 6) 27 F. (2d) 27, 31, 32, the Court said:

> "It may be said, with some certainty as to original claim 2, and with some probability as to claims 1 and 3, that, if granted, they would have seemed to cover defendant's later structure, and might or might not have been construed in that way. The trouble was that with that construction they went beyond the applicant's device and reached the prior art. Wagenhorst's amended divisional claim restricted his claimed invention to the specific form of its concrete embodiment. This is a very different thing from the enlargement in the Webster Case".

See also *McGrath* v. *Burke*, 12 F. (2d) 161, 162 (App. D. C.) and *MacLaren* v. *Stoetzel*, 38 F. (2d) 125, 128, 129 (C. C. P. A.), in each of which delay in presenting specific claims was excused because the inventor *believed* he had covered the subject matter by the claims of an earlier patent or application, notwithstanding the fact that such belief was mistaken.

In the case at bar, the Court of Appeals found no excuse for Warth's delay. It refused to give him the benefit of the ruling of such decisions as the *Hartford-Empire* case (*supra*, p. 24) because of its erroneous conclusion that Warth's parent claims do not cover preheating. This conclusion was based on a plain error, as we show, *infra*, pp. 26-32.

The Court of Appeals also failed to give Warth the benefit of such rulings as that in the *Wagenhorst* and other cases cited (*supra*), because it ignored the fact that the parent patent claims, at the very least, *are susceptible of an interpretation broad enough to cover preheating.*

Hence, Warth's belief that they were of such broad scope and his reliance thereon were reasonable, and this brought him directly within the rule of the cited cases, as we show *infra,* pp. 33-36.

A. It is sufficient excuse that the parent patent claims do cover generically the preheating method of the divisional patent.

The District Court found that the parent patent claims should be interpreted to cover *any* way of utilizing heat simultaneously with pressure at the instant of assembly, whether by heated punch or preheated cork. The Court said (R. pp. 1790-91):

> "The claims in suit are not limited to the application of heat directly to the punch, and they are not so limited by the drawing offered by Warth in the prosecution of his patent, simply for the purpose of illustrating a suitable means for effecting the simultaneous application of heat and pressure at the instant of depositing the spot.
>
> "The prior art did not, nor do I find anything in the records of the Patent Office actions which limit the claims in suit to producing in any particular way the heat which is utilized at the instant of assembly."

The Court of Appeals did not disagree with the finding of the District Court that the claims, when broadly so construed, avoid the prior art; that is, are not anticipated, when so construed, either by petitioner's old slide machine or by any prior patent. The Court of Appeals simply refused to accord the claims the broad construction adopted by the District Court, solely because (a) it misinterpreted the language of the patent claims, and (b) it drew certain inferences from the cancellation of a reference to preheating just before the grant of the parent application and the withdrawal of claims broad enough to cover preheating but (a thing the Court overlooked) also broad enough to be rejected by the Patent Office as including the prior art.

1. The Language of the Parent Patent Claims Clearly Covers Applying Heat to the Spot by Either a Heated Punch or a Heated Cork Cushion.

Referring to that clause of the Warth claim which reads

> "and upon assembly applying simultaneously *to the spot* pressure and sufficient heat"

the Court of Appeals said (R. p. 1836) that this

> "clearly means *applying* the heat at the time of pressure, not pressure by a cold punch on an already heated crown". (Court's emphasis).

But, in saying this, the Court clearly overlooked the all-important words **"to the spot"**.

Warth's method, as stated in the claim, is concerned *only* with the time when the heat is applied **to the spot**, not when it may be applied to some other part of the crown. No matter at what point in its travel the non-spotted crown receives its heat, obviously **none of that heat can be applied "to the spot" until the spot is pressed against the heated crown.**

As a consequence of its overlooking the phrase "to the spot", the Court went on to say erroneously that the above-quoted clause of the claim *cannot* mean "pressure by a cold punch on an already heated crown", i. e., on a pre-heated non-spotted crown. Clearly, that operation is precisely one which the clause does cover, since in such an operation, the heat and pressure are applied simultaneously "to the **spot**" only upon or at the instant of its assembly with the crown, exactly as the claim specifies.

Because of this erroneous and strained construction, the Court said (R. p. 1835) that the claims must be limited to mean "that the heat and pressure are applied by the cutting punch". By thus disregarding the words "to the spot", and reading into the method claims a mechanical limitation, the Court has rewritten the claims as the Patent Office would not have permitted Warth himself to do, *since*

the heated punch was not part of his original disclosure and was added to the application disclosure during the prosecution of the application merely *as an example* of a way "to utilize at the time of assembly, both heat and pressure". *In re Dilg,* 25 App. D. C. 9, 11.

Even if the application had originally disclosed only the heated punch, nevertheless the claims would have covered preheating the cork, since, as the uncontradicted testimony shows, (R. p. 69), preheating is only another way, though a novel and important one, of

> "doing the same thing that Warth teaches in the reissue [parent] patent, that is utilizing the heat * * instantly at the time of assembly. It accomplished the same final result * * *".

Thus, a hot punch and a preheated cork function for the same purpose, namely, to transmit or apply heat to the spot at the instant of assembly, the difference being that, by the heated cork, the heat is applied from below and, by the heated punch, from above the spot. *Defendant actually uses both, because its heat is applied partly by the punch and partly by the cork* (R. p. 95, RDQ 282).

Moreover, the description of the heated punch (R. p. 550, l. 56 *et seq.*) is immediately preceded by the broad statement (R. p. 550, l. 46 *et seq.*):

> "The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork cushion material insert or facing of the cap."
>
> "In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap".

The Court of Appeals has inferred from this amendment to the specification that the claims presented at the same time were not intended to cover preheating. We submit that the inescapable inference in view of the broad lan-

guage inserted in the specification is that the patentee intended to emphasize the broad scope of his claim. Warth said, in effect:

> "I comprehend in my claim *any* way of producing heat for use at the time of assembly, whether by heating the punch or by heating the cork".

The heated punch is thus described merely as "a suitable mechanism" for adhering the spot at the time of assembly in accordance with the method thus broadly stated.

Hence, it is clear that the specification (1) states the method as broadly involving the application of heat and pressure to the spot at the time of assembly without limitation to the particular way they are applied, and (2) describes the heated punch merely as illustrative of "a suitable mechanism" for practicing this broad method.

2. The File of the Parent Patent Shows That No Amendments Were Made Which Justify Reading Into the Claims the "Heated Punch" Limitation.

The Court of Appeals referred (R. p. 1835) to certain amendments made during the prosecution of the Warth parent patent, and particularly the insertion of the drawing of the heated punch as well as the description of the punch operation.

We have already shown (*ante*, pp. 7, 8) that Warth's patent drawing, including the heated punch, is merely illustrative of what he identified as "a suitable mechanism" by which his method could be carried out. We have also shown (*ante*, p. 28) that the uncontradicted proof is that a preheated cork and a heated punch each accomplish the same final result. As the District Court (R. p. 1790) said:

> "The sole purpose of preheating the cork immediately in advance of the punch is to create heat, which will be available at the instant the spot is deposited, so that there will be provided the combined effect of heat and pressure."

Consequently, it was wholly immaterial whether Warth showed, as part of his illustrative mechanism, a heated punch or preheated cork. Both of them were known to him and described in his application as suitable procedures for applying heat to the spot at the instant of assembly. A showing of either will support a claim drawn in language sufficiently broad to cover both. The fact that he selected only one of them for purposes of illustration creates no inference that, thereby, he intended to limit his invention to that particular procedure.

It is true that, as the Court of Appeals said (R. p. 1835), when Warth filed his drawing, he also cancelled reference to preheating. But we have shown (*a*) (p. 7, *ante*) that, at the same time, he inserted the broader statement (R. p. 1272, quoted p. 8 *ante*) that his preferred method is broadly to utilize heat at the instant the spot is deposited, and (*b*) that such cancellation is customary procedure when, as here, a divisional case is filed (*ante*, p. 8).

Certainly, if any inference from this amendment to the specification is warranted, it is that Warth intended to emphasize, rather than to restrict, the breadth of his invention and to cover *any* way of applying heat to the spot at the instant of assembly.

As a further reason for its limitation of the parent patent claims to a heated punch, the Court of Appeals referred to the cancellation of certain broader claims (R. p. 1835) when the parent patent claims were inserted by amendment. But the Court of Appeals overlooked the fact that these cancelled claims were so broad as to be rejected by the Patent Office on prior art (R. pp. 1253, 1256). Furthermore, none of such cancelled claims had the scope petitioner is urging for the parent patent claims and the scope which the District Court gave them. Hence, such cancellation cannot be used to limit the present claims to a heated punch, because certainly no reference is made in them to a heated punch. This is not a case where a patentee inserted a limitation (heated punch) in his claims in order to induce their allowance by the Patent Office.

Finally, the law does not warrant the inclusion in the Warth claims of an element (heated punch) not expressly included therein. Yet that is precisely what the Court of Appeals did when it said that the Warth claims must be limited to mean "that the heat and pressure are applied *by a cutting punch*" (R. p. 1835).

This Court has held in a number of recent cases[23] that parts of the specification or of other claims which the patentee has not included in his claim cannot be read into that *claim by Court interpretation, even to save the claim.* Yet, in the case at bar, the Court of Appeals rewrote the Warth claims to include the heated punch, thus doing what this Court has said should not be done and, furthermore, as pointed out (*ante*, pp. 27, 28), doing what the Patent Office would not have permitted Warth himself to do since the heated punch was not part of the original disclosure. (*In re Dilg. ante*, p. 28.)

3. The Court of Appeals' Construction of the Claims Is Inconsistent With the Evident Intent of the Patentee and Deprives Him of Protection for His Actual Invention.

This Court has repeatedly held that, if a patent claim is susceptible of two constructions, that one should be adopted which will secure to the patentee his actual invention rather than one which is fatal to the grant.[24] By limiting the claims to a hot punch, the Court of Appeals has deprived petitioner of all protection for the Warth invention as it has always been employed by petitioner (R., pp. 94, 372-4).

The uncontradicted evidence is that petitioner has been using the preheating invention since 1926 (R. pp. 381, 383). Photographs of petitioner's 1926 machines (R. pp. 612A,

---

[23] *Altoona* v. *American Tri-Ergon*, 294 U. S. 477, 487; *Smith* v. *Snow*, 294 U. S. 1, 11; *Smith* v. *Hall*, 301 U. S. 216, 220.

[24] *Smith* v. *Snow*, 294 U. S. 1, 14; *Keystone* v. *Adams*, 151 U. S. 139, 144, 145.

612B), original 1926 drawings (Exhs. 47, 48, 49-Physical), and a typical spotting unit from such a machine (Exh. 46) are in evidence and were proved (R., pp. 374-379).

No one questions that preheating was part of Warth's original application disclosure, or that such disclosure was continuously before the Patent Office, either in the original or in the divisional applications, until the preheating claims were made.

But more than this, by undisputed evidence it has been shown that **the patentee Johnson (R. p. 575), from whom respondent acquired knowledge of the invention through machines purchased from Johnson, visited petitioner's factory in 1928 and observed petitioner's practicing of the preheating methods** (R. pp. 348-9; 358; 375). Johnson had been an inventor and builder of crown cap machinery for thirty-three years (R. p. 160) and had been working since 1927 to develop a method of applying spots to crowns (R. p. 167). Yet it was not until *after* he had visited petitioner's factory and studied the operation of petitioner's machines that he applied for the patent with which Warth was in interference and was able to supply respondent with machinery using the preheating method which is here charged to infringe.

Certainly it is clear that the original Warth application was filed to protect this method, as used, including preheating.

By restricting the claims of the parent patent to a heated punch, the Court of Appeals has so narrowed the patent that (1) it does not protect what Warth invented and disclosed and what petitioner has done since it began to use the Warth method and (2) it does not cover what respondent is doing as a result of information which its machinery supplier, Johnson, obtained by inspecting petitioner's operations.

Obviously, therefore, the interpretation of the parent patent adopted by the Court of Appeals is one which does not secure to the patentee his actual invention.

B. It is sufficient excuse that Warth reasonably believed that the parent patent claims cover the subject matter of the divisional patent claims and acted in accordance with that belief.

Since, in the case at bar, the Court of Appeals agreed that Warth's delay would be excusable if the Court had construed the parent patent claims to be of such scope that they would cover preheating, it is submitted that it should have, in any event, excused the delay because the parent patent clams are, at least *seemingly*, broad enough on their face to cover preheating and that Warth believed in and relied on such seeming scope.

This should be the rule since one's diligence at a particular time should be measured in the light of the circumstances (parent patent claims' scope) as then reasonably understood by him, and not as later and unexpectedly determined by judicial inquiry.

In each of the cases cited (*ante*, p. 25), delay in filing application and presenting claims was held excused because of the belief, even though mistaken, that the subject-matter had been covered by earlier applications or patents.

The foregoing discussion (*ante*, pp. 27-32) of the language of the parent patent claims and of the patent record shows that the claims of the parent patent, at least on their face, are reasonably susceptible of an interpretation which will cover preheating.

Moreover the record establishes that Warth actually believed the claims to be of such breadth and so relied upon them. His conduct is consistent with no other conclusion.

As soon as petitioner learned that Johnson had obtained his patent and was making for others machines for practicing the preheating method (R. pp. 522, 523) he was notified of infringement of the parent patent. Petitioner's notice of infringement to respondent (R. p. 2185) of infringement of the parent patent (R. p. 565), when (R. p. 521) petitioner learned of respondent's activities, is further evidence that

petitioner, *in fact*, relied upon the claims of the parent patent as covering preheating.

The conclusion of the District Court that the parent patent covered preheating is evidence that petitioner's reliance on the broad scope of the claims of that patent was not unreasonable. This is also shown by Johnson's admission of concern with respect to infringement (R. pp. 164, 925) and his acceptance of a license under the patent.

Summary as to Excuse for Delay.

If, under the circumstances of this case, an excuse for Warth's delay in asserting specific preheating claims is required, then the facts, which we have just explained in detail, adequately provide such excuse.

Warth had the invention in use as early as 1926. His original specification admittedly disclosed it and his original claims admittedly covered it. He obtained, in the parent patent, claims which do cover preheating or, at least, are reasonably susceptible of such a construction.

Warth relied upon the claims of the parent patent as affording a monopoly sufficiently broad to exclude others from using preheating, as shown by notice to Johnson and respondent of infringement of the parent patent as soon as their use of preheating became known.

Moreover, there was no delay by Warth in asserting his prior inventorship of preheating after Johnson's patent with specific preheating claims came to Warth's attention. As pointed out *ante*, p. 9, if, through oversight, the Patent Office had not failed to declare an interference between the Johnson application and Warth's original application, the question of priority would have been determined in the manner provided by the Statute and the Patent Office Rules while Warth's *original* application was pending. Warth would, by such interference, have had actual notice of the necessity for presenting specific preheating claims since such claims then stood allowed in the Johnson application (R. pp. 712, 717).

In *Chapman* v. *Beede,* 296 Fed. 956, 959, (App. D. C.), where there had been a similar oversight on the part of the Patent Office in declaring an interference, the Court recognized that the applicant was entitled to the benefit of the equitable maxim that the Courts view as done what ought to have been done and excused a delay of more than two years because the inventor had previously claimed substantially the same invention. Warth, like the inventor in the *Chapman-Beede Case,* in presenting the specific claims was simply covering what he had originally disclosed and claimed broadly, without any intent to expand his disclosure to cover later methods which had come to his attention. By making such specific claims, when the Johnson patent came to his attention, Warth immediately obtained an interference with the Johnson patent so that the Patent Office would have opportunity to correct its mistake.

Clearly Warth should not be penalized for delay directly traceable to this Patent Office oversight.

This Court, in *Chapman* v. *Wintroath supra,* appreciated the inequity of penalizing an inventor whose delay in presenting claims is attributable to a Patent Office failure to declare an interference with an inadvertently issued patent. The Court said (pp. 138, 139):

> "But when a conflict between inventions disclosed in applications *escapes the attention of the Patent Office Examiners,* Rev. Stats., Sec. 4904, and a patent is issued, with claims conflicting with the disclosures of a pending application, the applicant receives only such notice of the conflict as he is presumed to derive from the publication of the patent. In the one case the notice is actual and specific, in the other it is indefinite and constructive only. When the great number of patents constantly being issued is considered, many of them of a voluminous and complicated character, such as we have in this case, with many and variously worded claims, such an implied notice must necessarily be precarious and indefinite to a degree which may well have been thought to be *a sufficient justification for allowing the longer two-year period to inventors who*

must, at their peril, derive from such notice their knowledge of any conflict with their applications.''

While Warth might have made claims specific to preheating in his original application, he should not be charged with lack of diligence in failing to do so until he had notice, as by issuance of the Johnson patent, of any reason to present specific preheating claims.

We submit that, in view of the foregoing, the Court of Appeals should have excused Warth's delay and held the divisional patent valid.

POINT V.

The Grant of the Divisional Patent is Not Inconsistent with a Broad Interpretation of the Parent Patent Claims.

The reason assigned by the Court of Appeals for adopting a limited construction of the parent patent claims was (R. p. 1836):

> ''To read them to mean a cold punch which positions the spot on a preheated cork would be inconsistent with the fact that the preheating specification was deliberately divided out and later claimed in Warth's 'preheating patent' hereafter to be discussed''.

The above-quoted statement apparently overlooks the fact that a customary procedure when protecting by a separate divisional application, a divisible part of what is disclosed in an original parent application, is to cancel the disclosure of that part from the parent application when it is embodied in the separate divisional application. As the District Court said (R. p. 1800), the Warth divisional patent subject-matter

> ''was specifically reserved by continuous inclusion in the divisional application and later in the second division. This has been approved and is the usual practice. *Writer* v. *Kiwad*, 63 Fed. (2d) 259.''

The Court of Appeals obviously overlooked the fact that the two patents have a logical and valid relationship when

the claims of the parent patent are broadly construed. In other words, the parent patent claims cover broadly *any* way of applying heat simultaneously with pressure to the spot at the instant the spot is deposited upon the cork. The hot punch is illustrated as one suitable means for doing this. When the parent patent expires, the public will be free to use any method involving the use of heat simultaneously with pressure at the instant of assembly *except* the specific way (preheating) claimed in the divisional patent. The divisional patent, therefore, does not extend the parent patent monopoly, as respondent has suggested.

This relationship between the two Warth patents is the one which usually exists between broad parent and specific divisional patents. Therefore, the District Court (R. p. 1804) correctly said:

> "None of the claims of the divisional patent is readable upon the disclosure of the reissue, and therefore when the Reissue Patent expires, the public will be free to practice the method without infringing the divisional patent, that is, the public may employ any method of obtaining the heat at the instant of assembly except the specific 'heating the pads in the caps' covered in the later patent.
>
> "The Reissue Patent is the generic and the divisional the specific patent, and therefore the reissue does not anticipate the divisional patent."

POINT VI.

The Court of Appeals Should Have Found that Respondent Infringes the Claims of the Warth Parent Patent.

The Court of Appeals did not suggest that the parent patent claims would be anticipated by the method of petitioner's slide machine (Appendix, pp. 41, 42) or by other prior art if the claims were construed to cover preheating. As we have already shown, it narrowly construed the claims only because of (*a*) certain inferences drawn from proceedings in the prosecution of the parent patent, and (*b*) a misreading of the language of the parent patent claims.

We have shown that there is nothing in the patent file which precludes the interpretation for which we contend and that the language of the claims applies clearly to a method in which the heat is obtained *either* from the punch or from a heated cork.

Referring to the claims, the Court of Appeals said (R. p. 1836):

> "To read the claims of the reissue patent to mean a cold punch to cut the spot and a hot plunger applied later to fasten it to the cork disc would make them invalid under the old 'slide machine'."

We admit that the claims do not cover a cold punch for cutting the spot *unless in the same operation heat and pressure are simultaneously applied to the spot.* Petitioner has never asserted, nor is there anything in the record to suggest, that the claims read upon the use of a cold punch followed by the application of heat by a hot plunger *later or at another station.* Consequently, this alternative procedure proposed by the Court has no bearing on any issue in the case.

But the important point is that the Court did not find that the claims would be anticipated *if construed to cover the simultaneous use of heat and pressure at the instant of assembly, whether the heat comes from the punch or from the cork.* Therefore, the Court of Appeals did not reverse the holding of the District Court that the claims, if construed as they read, would be valid over the prior art.

We submit that the construction of the claims adopted by the District Court was correct, since it is the only interpretation which is consistent with the claim language and with the evident intent of the patentee as shown by his conduct in the prosecution of his parent patent (1,788,260) and after the grant of the patent. Moreover, it is the only interpretation which secures to the patentee protection for his real invention.

The Court of Appeals found (R. p. 1837) that respondent infringes the claims of the divisional patent and since those claims are merely for a specie (preheating) of the invention claimed in the parent patent, this is the equivalent of a finding of infringement of the parent patent, if the claims thereof be construed as petitioner contends. Respondent uses the spotting method of the Johnson patent (R. p. 575). As the Court of Appeals said (R. p. 1835, footnote), respondent uses a cutting punch which, by radiation from adjacent "preheater" and "post heater" plungers, has a temperature of approximately 140° F. Respondent *also* heats the cork. Thus, respondent applies the heat to the spot at the instant it is assembled, partly from the punch and partly from the cork. The fact that respondent, in addition to using a heated punch, also employs a heated cork to render the adhesive tacky, certainly does not avoid a patent which initially described the use of the heated cork and thereafter illustrated the heated punch as *another* example. Respondent simply chose to use *both* the punch and the cork as sources of heat, instead of a single source. Although the heat (140°) in respondent's punch alone might not suffice for efficient operation, respondent certainly makes use of a heated punch, and to this extent employs the invention of the Warth parent patent claims, even as limited by the Court of Appeals.

The claims should be accepted as they read and are valid. The District Court so found and clearly pointed out (R. pp. 1785-87; 1789-90) how the claims, construed as petitioner urges, distinguish from the prior patent art, as well as petitioner's old "slide" machine method.

CONCLUSION.

It is submitted that the decree of the Court of Appeals should be reversed and that this Court should hold:

1. That the doctrine of *Webster* v. *Splitdorf* applies only where there have been intervening adverse rights more than two years prior to the filing of a divisional application

and, in the absence of such intervening rights, no excuse for delay in presenting the claims in a divisional application is required.

2. That, even if an excuse be required for Warth's delay in presenting his divisional patent claims, the record shows an adequate excuse in that the parent patent claims are, in fact, or at least seemingly, of sufficient breadth to dominate the "preheating" method of the divisional patent and Warth reasonably relied upon the claims as being of such scope.

3. That the claims of the Warth divisional patent are valid and infringed.

4. That the claims of the Warth parent reissue patent are valid and infringed.

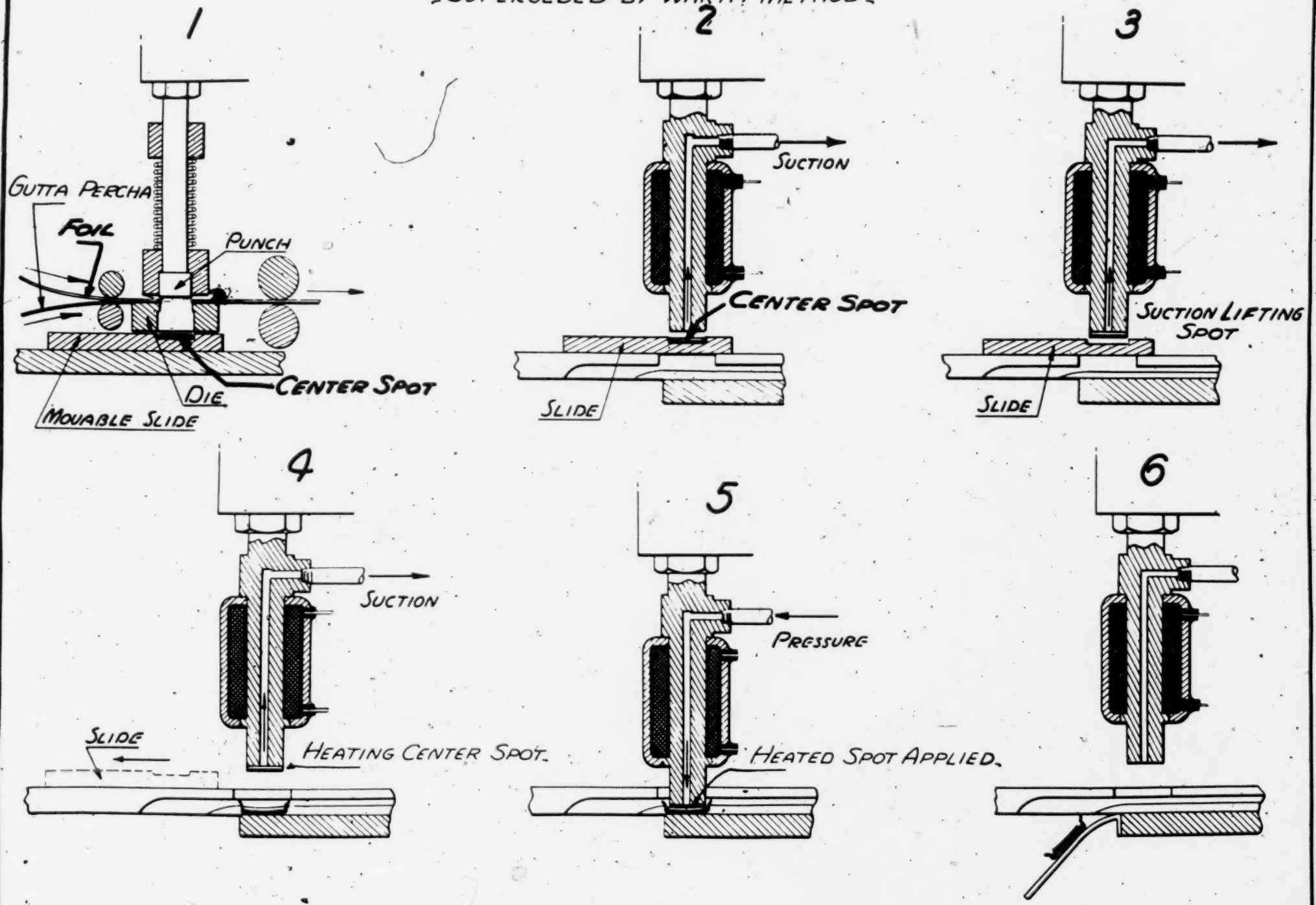
Respectfully,

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER:
Counsel for Plaintiff-Petitioner.

BLANK

PAGE

PETITIONER'S "SLIDE" METHOD
SUPERSEDED BY WARTH METHOD



BLANK

PAGE

APPENDIX.

Petitioner's Old "Slide" Machine.

The operation of this machine, as disclosed by contemporaneous description and photographs (R. pp. 613, 614A, B), is illustrated by the drawings opposite this page. Separate strips of tin foil and gutta percha tissue were fed, one over the other, beneath a cutting punch which cut out a disc from each strip and deposited them in a cavity in a movable slide. Then the slide moved horizontally, carrying the cut-out discs beneath an electrically heated suction plunger which, by its suction, lifted the two discs from the slide cavity and held and heated them while a crown shell containing a cork cushion was being moved beneath the plunger and the slide was being withdrawn. Then the plunger descended with the already-heated spot and pressed it against the crown, the suction being changed to pneumatic pressure, which blew "the spot from its position * * * onto the crown" (R. p. 613). The crown was then ejected from the machine.

The Warth Method and Slide Machine Differ Essentially.

Claim 3 of the Reissue patent quoted in the footnote (p. 4, *ante*) specifies the essential differences between the Warth method and the method involved in petitioner's old slide machine, over which, as the District Court said, "the [Warth] method has great advantages" (R. p. 1785). The District Court (R. p. 1790) found that:

> "The combination of steps defined in the Warth methods of the patents in suit are not found in the plaintiff's first or slide machine, and it does not anticipate".

The Court of Appeals did not disagree with this, but construed the claims of the parent patent narrowly because of certain inferences which it drew from occurrences during the prosecution of the application for the Warth parent patent.

The method as defined in the claim covers the combination of all the steps and specifies the stage at which the heat is applied *to the spot*. The claimed method involves the following:

> *First*, a strip coated with thermoplastic adhesive is positioned beneath a punch and over a crown. (The slide machine used *separate* strips of tinfoil and gutta percha).
>
> *Second*, the punching operation is utilized to deposit the spot upon the crown in central position. (The punch in the slide machine deposited the gutta percha and foil discs in a slide).
>
> *Third*, heat and pressure are utilized simultaneously upon or at the instant of assembly, to adhere the spot. (In the slide machine the discs were lifted from the slide and heated *before* deposit on the crown).
>
> *Fourth*, the crown is cooled under pressure (claim 3). (There was no pressure on the crown during cooling in the slide machine).

While each of the steps is vital, as petitioner's witness puts it (R. p. 67):

> "This last [Third, *supra*] step of applying both heat and pressure instantly with assembling serves the useful purpose of positioning the center spot centrally in the cap and enables it to stay put until further operations can be performed. This must be done instantly. Where you are running a machine at 500 per minute there is no time to wait, and one must be sure that the spot is centrally positioned.
>
> "The use of heat and pressure instantly with deposit of the spot might be considered the keynote of the entire operation. However, the three steps are like, I might say, the three steps of a tripod. Without any one of these steps the method will not function".

In the slide machine, none of the steps above described was performed. The spot was not punched over the crown. The punching operation was not used to deposit the spot on the crown. The heat was applied to the spot *before* it was assembled with a crown, *i. e.*, by a hot plunger which

lifted it from the slide and held the spot for heating while the slide was withdrawn and while a crown was positioned beneath the plunger. Finally, in the slide machine there was no cooling of the spot under pressure. As a result, the speed of production was very slow and defective crowns were frequent (R. p. 370).

U. S. C., Title 35; Sec. 52 (R. S. Sec. 4904).

"Whenever an application is made for a patent which, in the opinion of the commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be, and shall direct the primary examiner to proceed to determine the question of priority of invention. And the commissioner may issue a patent to the party who is adjudged the prior inventor, unless the adverse party appeals from the decision of the primary examiner, within such time, not less than twenty days, as the commissioner shall prescribe."

Rule 96—Rules of Practice in the United States Patent Office.

"96. Whenever the claims of two or more applications differ in phraseology, but relate to substantially the same patentable subject matter, the examiner shall suggest to the parties such claims as are necessary to cover the common invention in substantially the same language. The examiner shall send copies of the letter suggesting claims to the applicant and to the assignee, as well as to the attorney of record in each case. The parties to whom the claims are suggested will be required to make those claims within a specified time in order that an interference may be declared. Upon the failure of any applicant to make any claim suggested within the time specified, such failure or

refusal shall be taken without further action as a disclaimer of the invention covered by that claim unless the time be extended upon a proper showing. After judgment of priority the application of any party may be held for revision and restriction, subject to interference with other applications.

Whenever it shall be found that two or more parties whose interests are in conflict are represented by the same attorney, the examiner shall notify each of said principal parties and also the attorney of this fact."

U. S. C., Title 35, Sec. 31 (R. S. Sec. 4886).

"Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, or who has invented or discovered and asexually reproduced any distinct and new variety of plant, other than a tuber-propagated plant, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtained a patent therefor."

U. S. C., Title 35, Sec. 33 (R. S. Sec. 4888).

"Before any inventor or discoverer shall receive a patent for his invention or discovery, he shall make application therefor, in writing, to the Commissioner of Patents, and shall file in the Patent Office a written description of the same, and of the manner and process of making, constructing, compounding and using it, in such full, clear, concise,

and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine, he shall explain the principle thereof, and the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions; and he shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery. The specification and claim shall be signed by the inventor. No plant patent shall be declared invalid on the ground of noncompliance with this section if the description is made as complete as is reasonably possible."

Claim 35 (R., p. 925) of the Johnson Application Which Was Not Suggested by the Patent Office to Warth for Interference Purposes as it Should Have Been Under the Statute and Rule (Appendix, p. 43 ante.)

"35. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads assembled therein and a web of lining material having an adhesive surface non-viscous at normal temperature, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the pads, then placing the linings in the caps under heat and pressure to render the adhesive viscous and effect an intimate contact between the linings and pads."

Utah Radio Corp. Products Co. v. Boudette (C. C. A. 1st), 78 F. (2d) 793.

The Court, stating the facts of the Webster case, pointed out that the subject-matter of the divisional claims had been disclosed in a Podlesaks patent issued over five years before the claims were first presented and had been in public use by others than the patentee for over five years.

The court said (at p. 799) after referring to the Webster case, that claims may "reasonably" be presented at any time within two years after the adverse public use:

> "*In that* [*Webster*] *case the court applied by way of analogy the statutory two-year period of prior publication and public use* * * *.
>
> "There the subject-matter of claims 7 and 8, though not claimed in the Podlesaks patent, was disclosed by it, and, consequently, on the issuance of that patent in 1913, was published and given to the public.
>
> "In the case now before us, the subject-matter of claims 1, 2, and 5 here in issue was known and *in public use* through the sale of RCA loudspeaker 104 *in November, 1925,* some four years before claims 1, 2 and 5 were asked for, whereas they reasonably *could have been inserted* in the original application of April, 1926, or *at any time thereafter up to two years from November, 1925,* but were not until October 17, 1929, when the divisional application was made."

Wagenhorst v. Hydraulic Steel (C. C. A. 6th) 27 F. (2d) 27, 29.

The Court (Denison, J.,) after reciting the facts of *Webster* v. *Splitdorf,* said with reference to that case:

> "From the recitals and reasoning of the [Webster case] opinion, we are unable to see that the fact that the amendment of 1918 was presented in a divisional application, instead of an original application, was of any importance to the result reached. The long delay which elapsed between the original and the divisional was important, *not because it was the interval between these two applications, but because it extended so long after the 1913 public disclosure.* If the original application of 1910 had not matured into a patent in 1916, but had continued pending, and the amendment in 1918 had been offered in that original application, and the facts had been otherwise the same, we see nothing in the opinion, and no reason occurs to us, which would indicate a different result. In other words, claims 7 and

8 were invalid *because*, in an effort to broaden any previous statements of the invention, *they were first presented by an amendment offered five years after their subject-matter had been disclosed to the public by the Podlesaks patent;* and such an effort to broaden the claim of invention was, by analogy to the reissue rule, barred by laches, estoppel, and intervening rights. In the present case the divisional application was filed promptly after the intervening device appeared, and the Webster Case does not apply."

Wirebounds Patents Co. et al. v. Saranac (C. C. A. 6th), 37 F. (2d) 830, 840, 841.

The District Court had held the patent in suit invalid under the ruling in the Webster case. The Court of Appeals (Denison, J.,) discussing the *Webster* case reversed the District Court and said:

"This [District Court decision] was before we had by our Wagenhorst Case, * * * adopted our interpretation of the Splitdorf decision." * * *

"This case is plainly not within the Splitdorf rule, as we understand it, either by parallelism or by strict analogy. Defendant points out, as a general analogy, that the machine and method had been in public use by the applicants, who became the patentees, and under licenses from them, all for more than two years before the divisional application was filed. This is true. When it is remembered that the divisional application is normally entitled to the benefit of the original filing date, it is not easy to see how public use under license from the applicants can amount to that laches under which adverse rights may arise; *or how the Splitdorf rule can apply unless the delay is after the public appearance of an adverse claimant, or, perhaps, one who may be an adverse claimant;* but we find it unnecessary to decide that question".

Wirebounds Co. v. Saranac (C. C. A. 6th), 65 F. (2d) 904, 905, 906.

"In view of the circumstances above mentioned, the cases of Webster Electric Co. v. Splitdorf Electric Co., 264 U. S. 463, 44 S. Ct. 342, 68 L. Ed. 792, and Chapman v. Wintroath, 252 U. S. 126, 40 S. Ct. 234, 64 L. Ed. 491, while dealing with one phase of laches and delay, are not precisely in point, for in them the making of amendments, the copying of claims for interference purposes, or the filing of divisional applications, was necessitated by the issue of a patent to another inventor, which patent wholly or partially covered the same ground as the pending application, and the sole purpose of the then applicant was to obtain a patent in terms broad enough to cover that already issued. These two cases held that, in analogy to the existing limitation upon a right to reissue, unexplained delay and neglect upon the part of an applicant, for more than two years, in bringing forward claims broader than those originally sought, that is, *a delay of more than two years after the issue of the other patent,* constituted laches by which the applicant lost whatever rights he might otherwise have had. Both cases had reference to interfering patents in respect of the same subject-matter. This we do not find in the present case, but the two cited cases are interesting as showing one set of circumstances in which rights which might otherwise have existed may be forfeited by laches."

Hopfelt v. Read, 190? Commissioner's Decisions, 319, 320, 321.

"The disclosure in the original application is identical with the disclosure in the later application involved in this interference. The interference is the same as though the earlier application had been included in place of the later one. The reason that the earlier application was not included was due to the fact that under the practice of the Office the claims could could not be made therein and it was necessary to file a divisional application. * * *

"This is so when two applications are pending contemporaneously and the first is not abandoned, whether the claims are presented in the original application itself or in a later application filed as a division or a continuation of the original application, as in the second case the later application dates back to the earlier one. *It is only necessary that the description in both applications shall be sufficient to support the claims. The fact that the Office practice may prohibit the prosecution and allowance of the claims in an earlier application does not prevent an applicant from availing himself of the earlier date of filing as his date of constructive reduction to practice* when he files a later application containing the same description and the claims based upon the same."

See also *Von Recklinghausen* v. *Dempster,* 34 App. D. C. 474, 476, 477, and *Forbes* v. *Thomson,* 1890, Commissioner's Decisions, 61, 63.

BLANK

PAGE

FILE COPY

Office - Supreme Court, U.S.
FILED
DEC 9 1937
CHARLES ELMORE

IN THE

Supreme Court of the United States

OCTOBER TERM 1937

No. 72

CROWN CORK & SEAL COMPANY, INC., *Plaintiff-Petitioner*,

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent*.

REPLY BRIEF FOR PLAINTIFF-PETITIONER.

THOMAS G. HAIGHT,
GEORGE F. SOULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Plaintiff-Petitioner.

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

BLANK

PAGE

TABLE OF CONTENTS.

Page

I. Respondent's Argument (Br. pp. 8-13) that the Invention of the Divisional Patent was Abandoned 2

A. Abandonment Was Not Pleaded by Respondent, as Required by the Statute, and Therefore is Not an Issue in this Case.... 3

B. There Was No Intent to Abandon the Divisional Patent Invention 4

1.—The Cancellation of Claims in the Prosecution of the Original Patent 4

2.—The Cancellation of the Specific Reference to Preheating in the Parent Patent Specification 7

3.—The Issuance of the Parent Patent Without a Description of Preheating and Before the Divisional Patent Claims Were Presented, Does Not Warrant an Inference of Intent to Abandon Preheating 8

C. To Negative Abandonment, the Invention of a Divisional Patent Need Not Have Been Claimed in its Parent Application.. 9

II. Respondent's Argument (Br. pp. 14-22) that the Divisional Patent is Not a Proper Division of the Warth 1930 Application and that the Latter is Not a Proper Division of the Original Warth Application 13

A. Disclosure of an Invention in an Application, even Without a Claim therefore, is Sufficient Basis for a Divisional Application for that Invention 15

B. Warth's Divisional Applications Complied With the Patent Office Rules to the Satisfaction of the Patent Office 17

Page

III. Respondent's Argument (Br. 22-24) that the Johnson Patent Properly Issued Without an Interference With the Original Warth Application 20

IV. Respondent's Argument (Br. pp. 24-25) that the Cancelled Preheating Description in the File of the Original Warth Patent Was a "Publication" 21

The Patent Office File Wrapper is Not a "Printed Publication" within the Meaning of the Statute (R. S. 4886) 22

V. Respondent's Argument (Br. pp. 26-32) that There Were Adverse Intervening Rights Against the Divisional Patent 24

The Record Supports the District Court's Finding that There is No Proof of Adverse Intervening Rights 26

1.—Alleged Intervening Rights Arising from Respondent's Activities 26

2.—Alleged Intervening Rights Arising from Johnson's Activities 30

VI. Respondent's Argument (Br. pp. 30-32) that Petitioner Knew in 1930 that Respondent Was Making and Selling Center Spot Caps and Should Have then Ascertained the Method Respondent Was Using 31

VII. Respondent's Argument (Br. pp. 33-35) that Petitioner's Laches Began With Johnson's Building of Machines for Petitioner in 1929 32

VIII. Respondent's Argument (Br. pp. 36-39) that Its Purchase of Machines from Johnson Before the Issue of His Patent Gives Respondent a License Under the Warth Divisional Patent..... 33

A. The Warth-Johnson Interference 33

B. Respondent's Claim to a License 35

IX. Respondent's Argument (Br. pp. 44-47) Denying Infringement of the Reissue Patent 37

Page

X. Respondent's Argument (Br. pp. 47-53) that the Warth Patents in Suit Involve no Invention Over the Prior Art 39

Conclusion 40

APPENDIX.

U. S. C., Title 35, Sec. 69 (R. S. Sec. 4920) 41

Ex Parte Replogle, 25 U. S. Pat. Q. 121, (Pat. Off. Board of Appeals—July 23, 1932) 41

Patent Office Rule 46 44

Commissioner's Order No. 1832 44

Commissioner's Order No. 2010 45

TABLE OF CASES CITED.

Abrahams v. *Universal Wire Co.*, 10 F. (2d) 838, 842 (D. C. E. D. N. Y.) 3
Adamson v. *Gilliland,* 242 U. S. 350, 353 ..... 25, 39
Alexander Milburn Co. v. *Davis-Bournonville Co.,* 270 U. S. 390 ..... 15, 16, 23
Barbed Wire Patent Case, 143 U. S. 275, 284 ..... 26*
Beedle v. *Bennett,* 122 U. S. 71, 76 ..... 4*
Benedict v. *Menninger,* (C. C. P. A.) 64 F. (2d) 1001 .. 14
Berlin Mills v. *Procter & Gamble,* 254 U. S. 156 25
Cantrell v. *Wallick,* 117 U. S. 689, 696 ..... 26*
Chapman v. *Wintroath,* 252 U. S. 126 ..... 10, 11, 12, 15, 16, 18, 29, 34
Chillis v. *Weisberg,* 1928 C. D. 24 34
Corona v. *Dovan,* 276 U. S. 358, 372, 373 23
Deere v. *Arnold,* 95 F. 169, 170 (C. C. N. D. N. Y.) 19
Deering v. *Winona Harvester Works,* 155 U. S. 286 8
Elizabeth v. *Pavement Co.,* 97 U. S. 126, 136 22
Fessenden v. *Wilson,* 48 F. (2d) 422, 425 (C. C. P. A.) 23
Field v. *Colman,* 40 App. D. C. 598 ..... 14, 15
Folberth Auto Specialty Co. v. *Mayo,* 292 F. 883, 894 (D. C. Ill.) 9
Forbes v. *Thomson,* 1890 C. D. 61, 63 10
Galliher v. *Cadwell,* 145 U. S. 368, 372, 373 22
Gladding-McBean v. *Clark,* 16 F. (2d) 50 13

Page

Hartford-Empire v. *Nivison*, 58 F. (2d) 701, 705, 706 (C. C. A. 6th) 36
Heap v. *Tremont et al.*, 82 F. 449, 459 (C. C. A. 1) 19
Heller Bros. v. *Crucible Steel*, 297 F. 39, 43, (C. C. A. 3) 19
Henry, Ex Parte, 1892 C. D. 88 10
Hopfelt v. *Read*, 1903 C. D. 319, 321 ..... 10, 17
Ide v. *Trorlicht* (C. C. A. 8th), 115 Fed. 137, 144 ..... 4*
Jones v. *Larter*, 1900 C. D. 111 ..... 16, 17
Kendall et al. v. *Winsor*, 62 U. S. 322, 329, 331 ..... 4*
Kramer v. *United States*, 261 U. S. 219, 226 ..... 25*
Lee and Hogan v. *Vreeland*, 1923 C. D. 94 10
Mason v. *United States*, 260 U. S. 545, 546 ..... 25*
Mast Foos & Co. v. *Dempster*, (C. C. A. 8th), 82 F. 327, 331 ..... 3, 4*
McClain v. *Ortmayer*, 141 U. S. 423 8
National Hollow B. B. Co. v. *Interchangeable*, (C. C. A. 8th) 106 Fed. 693, 714 ..... 5*
National Tube v. *Mark*, (C. C. A. 6th) 216 Fed. 507, 522 ..... 5*
Overland v. *Packard*, 274 U. S. 417, 421 ..... 6, 8, 11, 18
Radio Corp. v. *Radio Laboratories*, 293 U. S. 1, 8 26
Replogle, Ex parte, 25 U. S. Pat. Q. 121, (Pat. Off. Board of Appeals—July 23, 1932) 10, 14
Rifle Company v. *Whitney*, 118 U. S. 22, 24-25 ..... 4*, 6
Roberts, Ex parte, 1887 C. D. 61, 63 19
Saunders v. *Miller*, 33 App. D. C. 456, 469 ..... 4*
Scaife & Sons v. *Falls City* (C. C. A. 6th) 209 Fed. 210, 217 ..... 5*
Spitteler v. *Krische*, 1908 C. D. 374 13
Stimson, Ex parte, 1916 C. D. 20 17
Thomson Spot Welder v. *Ford*, 265 U. S. 445 25
United States v. *United Shoe Machinery Co.*, 247 U. S. 32, 37, 41 ..... 25*
U. S. Electric Co. v. *Consolidated* (C. C. N. Y.) 33 Fed. 869, 871 3
Utah Radio Products Co. v. *Boudette*, (C. C. A. 1st) 78 F. (2d) 793, 799 2
Von Recklinghausen v. *Dempster*, 34 App. D. C. 474, 476, 477 10
Wainwright v. *Parker*, 1909 C. D. 379 13
Walker on Patents, Sixth Edition, Sec. 499 3
Warren Featherbone Co. v. *Warner Bros. Co.* (C. C. Conn.) 92 Fed. 990, 991 3

Page

Wayne Co. v. *Benbow* (C. C. A. 8th) 168 Fed. 271, 279 5*
Webster v. *Splitdorf*, 264 U. S. 463 ..... 2, 10, 11, 22
Western Electric v. *General Talking Pictures Corp.*, 91 Fed. (2d) 922 2
Western Electric Co. v. *Sperry Electric Co.* (C. C. A. 7th) 58 Fed. 186, 192 3

STATUTES AND PATENT OFFICE RULES CITED.

R. S. Sec. 483, U. S. C. Title 35, Sec. 6 19
R. S Sec. 4920, U. S. C. Title 35, Sec. 69 3
R. S. Sec. 4886, U. S. C. Title 35, Sec. 31 ..... 22, 23, 29
Patent Office Rule 43 19
Patent Office Rule 44 19
Patent Office Rule 46 ..... 28*
Patent Office Rule 94 34
Patent Office Rule 96 20

COMMISSIONER'S ORDERS.

Commissioner's Order No. 1832 ..... 18*
Commissioner's Order No. 2010 ..... 18*

*Footnote.

BLANK

PAGE

IN THE

Supreme Court of the United States

OCTOBER TERM 1937

No. 72

CROWN CORK & SEAL COMPANY, INC., *Plaintiff-Petitioner,*

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent.*

REPLY BRIEF FOR PLAINTIFF-PETITIONER.

We reply herein to respondent's arguments in the order they are presented in its brief.

Respondent raises numerous defenses unrelated to the questions presented in the petition and on which the writ was granted. Each of these unrelated defenses was expressly rejected by the District Court and not discussed in the opinion of the Court of Appeals, although argued before that Court.

Although we think this Court, in view of the decisions below, will not examine these defenses, we answer them all herein, except the defense of non-invention over the prior art which we answer in a separate brief filed herewith.

I. Respondent's Argument (Br. pp. 8-13) that the Invention of the Divisional Patent Was Abandoned.

Respondent now contends that the preheating invention was abandoned and refers (Br. p. 9) to a discussion of this case by the Court of Appeals for the Second Circuit in its later decision in *Western Electric* v. *General Talking Pictures Corp.*, 91 F. (2d) 922, in which later case the Court[1] made the remark that Warth abandoned his invention.

Regardless of what respondent now asserts the Court of Appeals *intended* to hold in its decision in the case at bar, a reading of the decision below shows that the Court actually held the divisional patent invalid, not on a finding of abandonment, but only because of laches and unexcused delay in presenting claims. There is no reference whatsoever to *abandonment* in the Court of Appeals' decision. If that decision had been based upon a finding of abandonment, there would, of course, have been no point in the Court's statement that no "excuse appears here for delay" nor in its repeated reference to "apathy and unexcused delay" in bringing forward the divisional claims.

The distinction between laches and abandonment has been repeatedly recognized. For example, in *Utah Radio Products Co.* v. *Boudette* (C. C. A. 1st) 78 F. (2d) 793, 799, in discussing the applicability of *Webster* v. *Splitdorf*, 264 U. S. 463, the Court said:

> "This is a case of laches, not of abandonment. To prove abandonment it is necessary to show an intention on the part of the inventor to abandon or give the subject-matter to the public; but where laches—unreasonable delay—is the issue, the intent is unimportant, and especially so where public rights have attached pending the delay."

Moreover, in the case at bar, the Court of Appeals based its finding upon the decision of this Court in the *Webster*

[1] By Manton, J. who dissented in the case at bar.

case, *supra,* and, in that case, this Court applied the doctrine of laches as distinguished from abandonment.

A. Abandonment was not pleaded by respondent, as required by the Statute, and therefore is not an issue in this case.

Under the Statute,[1] which we quote in the Appendix, (p. 41), abandonment must be specifically pleaded or noticed as a defense before trial. Respondent did not plead it (I, 24-31) or give the required notice. Hence, the question of abandonment was not before the Court of Appeals. Nor was it raised by assignment of error, notwithstanding the fact that the District Court found as a fact (III, 1800) that the invention had not been abandoned.

The courts have uniformly construed the Statute to mean that there must be pleading or notice of the defenses specified therein, which defenses specifically include that of abandonment. Not only is the Statute mandatory, but the courts have recognized that it is unfair to plaintiff to have such an unpleaded defense considered.

> "Moreover, the defense of abandonment was not pleaded, and the appellant had no opportunity to meet it by evidence". *Mast, Foos & Co.* v. *Dempster,* (C. C. A. 8th) 82 Fed. 327, 331.

See also:

Western Electric Co. v. *Sperry Electric Co.* (C. C. A. 7th) 58 Fed. 186, 192;
U. S. Electric Co. v. *Consolidated* (C. C. N. Y.) 33 Fed. 869, 871;
Warren Featherbone Co. v. *Warner Bros. Co.* (C. C. Conn.) 92 Fed. 990, 991;
Abrahams v. *Universal Wire Co.,* 10 F. (2d) 838, 842 (D. C. E. D. N. Y.);
Walker on Patents, Sixth Edition, Sec. 499.

[1] R. S. Sec. 4920, U. S. C. Title 35, Sec. 69, Appendix, p. 41.

B. There was no intent to abandon the divisional patent invention.

Respondent refers (Br. p. 10 *et seq.*) to certain proceedings in the prosecution of the original patent as "*indications*" of intent to abandon the subject-matter of the divisional patent.

It is settled law[1] that the burden of proving abandonment rests heavily upon him who alleges it and that abandonment is a question of intent, *not to be presumed.* In *Rifle Co.* v. *Whitney,*[1] this Court said that, if abandonment is not proved "by express declarations of intention to abandon", **it must be proved "by conduct inconsistent with any other conclusion".**[2]

We will now show that Warth's conduct in prosecuting his original application not only creates no presumption of abandonment, but that, on the contrary, any possible inference of abandonment is clearly rebutted by his affirmative acts.

1.—The Cancellation of Claims in the Prosecution of the Original Patent.

Respondent contends (Br. p. 10) that, since Warth originally filed, but later cancelled, certain claims (III, 1247, 1248) sufficiently broad to cover the use of *either* a preheated cork or a heated punch for applying heat to the spot, and accepted other claims which, we submit, the Court of Appeals unwarrantedly held to be limited to a heated punch, he intentionally abandoned any right to make claims covering *specifically* the use of a preheated cork as he later did in his divisional patent.

Respondent's argument completely overlooks the fact that these cancelled claims were so broad as to be properly

---

[1] *Rifle Company* v. *Whitney,* 118 U. S. 22, 24-25; *Kendall et al.* v. *Winsor,* 62 U. S. 322, 329, 331; *Beedle* v. *Bennett,* 122 U. S. 71, 76; *Ide* v. *Trorlicht,* (C. C. A. 8th), 115 Fed. 137, 144; *Saunders* v. *Miller,* 33 App. D. C., 456, 469; *Mast, Foos & Co.* v. *Dempster Co.,* (C. C. A. 8th), 82 Fed. 327, 331.

[2] Emphases ours throughout unless otherwise stated.

rejected by the Patent Office on prior art (III, 1253-1256). Consequently, when Warth cancelled them, he was not abandoning any part of *his invention.* Nor does such cancellation afford a basis for giving the claims which he did accept a meaning narrower than their language compels, as respondent, in effect, argues should be done. Moreover, none of the cancelled claims was specifically directed to the application of heat by means of a preheated cork.

When, therefore, petitioner now asserts that the claims which Warth did accept in the parent patent cover the application of heat by means of a preheated cork, it is not asking for any interpretation of the patent claims which will include anything which was surrendered in order to obtain the patent. Nor did Warth, when he presented his *divisional* patent claims, ask for protection for anything surrendered by claim cancellation in the prosecution of the application for the parent patent.

Hence, the cancellation of the rejected claims in the parent application creates no inference of abandonment of preheating and does not warrant the application of the estoppel rule. The Courts have repeatedly held[1] that estoppel arises from claim cancellation only where an interpretation is urged for the claims of the patent which would make them the same in scope as the cancelled claims.

But that is not the situation here. No single claim cancelled during the prosecution of the original patent specified, as do the claims of both Warth patents (*a*) that the spot is punched over the cork, or (*b*) that the punching operation deposits the spot on the cork, or (*c*) that, upon or at the instant of assembly, heat and pressure are applied simultaneously. To all of these steps, the parent patent claims are admittedly restricted and petitioner is not asking a broader interpretation. Moreover the claims of the divisional patent are *additionally* limited to applying the heat

[1] *National Hollow B. B. Co.* v. *Interchangeable,* (C. C. A. 8th) 106 Fed. 693, 714; *Wayne Co.* v. *Benbow,* (C. C. A. 8th) 168 Fed. 271, 279; *Scaife & Sons* v. *Falls City* (C. C. A. 6th) 209 Fed. 210, 216-217; *National Tube* v. *Mark* (C. C. A. 6th) 216 Fed. 507, 522.

to the spot by preheating the cork, and certainly no claims to this were ever cancelled.

To supports its argument for abandonment of preheating, respondent cites (Br. p. 13) a number of cases in which claims were refused an applicant on the ground of *res adjudicata,* corresponding claims having been rejected and abandoned in earlier applications. These decisions are not in point, since, as we have shown, the claims of Warth's divisional patent do not correspond to any claims which were rejected or cancelled in the parent application. Moreover, even if they did, the Patent Office had a right to waive the question, as this Court specifically held in *Overland* v. *Packard,* 274 U. S. 417, 421:

> "As the Patent Office by granting the patent must be held to have waived any objection to the application on the ground that the claim allowed had been rejected before by that Office, there is no reason why the appellees below should not be allowed to avail themselves of the waiver."

No abandonment of preheating is to be inferred from the acceptance of the parent patent claims, because, as we show in our main brief (pp. 27-29, 33-34), (*a*) the Court of Appeals unwarrantedly read into those claims the "heated punch" limitation, and (*b*) Warth reasonably believed that the parent patent claims did cover preheating, which belief was in accord with the findings of the District Court.

Whether Warth was mistaken or not, it is clear that his acceptance of the claims is not "conduct inconsistent with any other conclusion" than abandonment of preheating (*Rifle Co.* v. *Whitney,* p. 4 *ante* footnote), particularly since the preheating invention had been reserved by disclosure in the previously-filed 1930 divisional application.

2.—The Cancellation of the Specific Reference to Preheating in the Parent Patent Specification.

Respondent refers to the cancellation of the "preheating" description as "indicating" an intent to abandon any right to protect this invention and the Court of Appeals also referred to this amendment. We have shown (Main Br., p. 7) that, when Warth cancelled this specific description, he inserted the *broader* statement (III, 1272, l. 11 *et seq.*) which reads:

> "The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material * * *.
>
> "In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched * * *".

We have also shown that Warth had previously included the preheating disclosure in his copending 1930 divisional application (III, 1668), the specification of which was identical with the original application and thus followed the practice established by the Patent Office and the Courts for preserving an inventor's right to every part of his application disclosure. See the decisions cited page 10, *infra*. Although the single claim of this 1930 divisional application (III, 1675) was directed to the strip material, the application specification states at the outset (III, 1671):

> "This invention relates to a *method* of producing closures of the type in which a sealing disc has a facing.
>
> This application is a division of my co-pending application Serial No. 159,743, filed January 7, 1927".

The copending application referred to in the above quotation was the original Warth application, and, in accordance with Warth's statement, the Patent Office duly endorsed the file (II, 669), thus formally recognizing, in ac-

cordance with the established practice, that this second application was entitled to the filing date of the original application.

Since Warth, when cancelling preheating from his original specification, *broadened*, and did not narrow, his statement of the manner in which heat is applied simultaneously with pressure, the inescapable inference is that he intended to emphasize the breadth of his invention and not to narrow it.

3.—The Issuance of the Parent Patent Without a Description of Preheating and Before the Divisional Patent Claims Were Presented, Does Not Warrant an Inference of Intent to Abandon Preheating.

Respondent cites (Br. p. 12) *McClain* v. *Ortmayer*, 141 U. S. 423, and *Deering* v. *Winona Harvester Works*, 155 U. S. 286, in support of its contention that the issuance of the parent patent, before specific preheating *claims* were presented, "indicates" an intent to abandon. In each of these cases, the subject-matter which was held dedicated to the public was not reserved in any copending application and was *described in the issued patent*. But the Warth parent *patent* did not describe preheating.

In the case at bar, Warth did exactly what this Court stated in *Overland* v. *Packard*, (274 U. S. 417, 420) would not warrant a holding of abandonment. In the *Overland* case, Cowles, in 1899, had filed an application disclosing more than one invention. The description of the invention in controversy was later cancelled from the application and the application went to patent on July 13, 1900. On September 6, 1901, over thirteen months after that patent issued, Cowles filed another application disclosing and claiming the invention cancelled from the earlier application and which he was charged with having abandoned. The invention was finally patented in a division of the 1901 applica-

tion, the division having been filed in 1912. This Court said (at 420):

> "We do not find in the statement of facts any circumstances which can be held to be an abandonment by Cowles of his claim for which he subsequently secured his patent."

Similarly, in *Folberth Auto Specialty Co.* v. *Mayo,* 292 F. 883, 894 (D. C. Ill.) the Court held that a disclosure in a patent issued more than two years patent before claims were presented in a divisional application does not constitute abandonment or dedication to the public, *since the subject-matter was disclosed in an intervening application copending with the earlier issued patent.* In the *Folberth* case, there was a description of the invention in the earlier issued patent, whereas, in the case at bar, the description does not appear in the patent.

C. To negative abandonment, the invention of a divisional patent need not have been *claimed* in its parent application.

So far as *claiming* preheating is concerned, it is true that Warth *might* have presented such claims in his 1930 divisional application. But the point raised by respondent for decision here, is as to whether Warth's failure to do so constitutes an abandonment of his right later to claim preheating in the divisional patent and whether the Patent Office was correct in according him, following its established practice, the filing date of his original application because he had had a disclosure of preheating continuously after his original filing before the Patent Office in patent applications.

This Patent Office practice was recognized and approved in the following cases, in each of which it was specifically held that the right to a patent is preserved, and abandonment negatived, by a continuing disclosure, *even in the absence of a continuing claim.*

Ex parte Replogle, 25 U. S. Pat. Q. 121, (Pat. Off. Board of Appeals—July 23, 1932; see appendix, pp. 41-44);
Lee and Hogan v. *Vreeland,* 1923 C. D. 94;
Ex parte Henry, 1893 C. D. 88;
Von Recklinghausen v. *Dempster,* 34 App. D. C. 474, 476, 477;
Forbes v. *Thomson,* 1890 C. D. 61, 63;
Hopfelt v. *Read,* 1903 C. D. 319, 321.

As we show in our main brief (p. 14), this practice is in accord with the rule laid down by this Court in *Chapman* v. *Wintroath,* 252 U. S. 126, wherein the Court said that a divisional application is entitled to the "priority of right" of the parent application for any invention disclosed in it, even though it "is not claimed therein".

Respondent urges (Br. p. 9) that the case at bar resembles the *Webster* v. *Splitdorf* case, because, respondent says, "in each the inventor *deliberately* failed to insert a claim while having ample time and opportunity to do so and only filed his divisional application after another party had obtained a patent for the invention", and that, in each case, the action of the inventor was due, in the language of this Court in the *Webster* case, to "an exigent afterthought rather than a logical development of the original application".

But the facts in the case at bar are essentially different from those in the Webster case, as we shall now show.

Although Warth failed to present claims specific to preheating in his original application, there is nothing to indicate that such action was *deliberate,* as was the fact in the *Webster* case where the patentee *intentionally* refrained from making the claims, because, as this Court said (p. 465), "he considered their subject-matter one merely of design and not of invention".

Moreover, it is admitted that Warth did not present claims in the application for the divisional patent *broader* than those he presented in his original application, as was

done in the *Webster* case. The Court of Appeals held (III, 1835) that Warth's original application had claims which dominated preheating. Hence, in the case at bar, in contrast with what this Court found in the *Webster* case (pp. 465, 467), Warth did not bring "forward claims broader than those originally sought" or which were "expansions of the original claims". In view of this, it is not correct to characterize Warth's divisional application as not being "a logical development of the original application".

Again, in contrast with the facts in the *Webster* case, Warth was not inspired to present the specific preheating claims in an effort to cover what others had done or what had been in general use. As the District Court correctly found (III, 1803-1804):

> "As soon as it came to Warth's attention that any one else was claiming the invention he, *being unaware of what methods others were using, and having no knowledge of defendant's using the preheating method,* proceeded as the statutes permitted, and in accordance with the practice recognized by the Patent Office and the courts. Overland v. Packard Co., 274 U. S. 417.
>
> "In making the claims to the preheating step Warth was covering what he had invented, *without any intent to expand his disclosures to cover later methods which had come to his attention.* This has been approved by the Courts. Carson v. American Smelting and Refining Co., 4 Fed. (2d) 463, 470; Remington Cash Register Co. National Cash Register Co., 6 Fed. (2d) 614; Overland Co. v. Packard Co., supra."

Although the facts in the case at bar are quite different from those in the *Webster* case, they closely parallel the facts in *Chapman* v. *Wintroath*, 252 U. S. 126.

In the *Chapman* case, the original Chapman application disclosed, but did not specifically claim, the invention of the later-filed divisional application. For six years, no claims to the divisional invention had been presented by Chapman. Such claims were first presented by Chapman in a divisional application only because the Wintroath pat-

ent, containing these claims, had issued, the Patent Office having inadvertently failed to declare an interference between the original Chapman application and the Wintroath application, as it should have done.

Similarly, in the case at bar, Warth was prompted to present his specific preheating claims in a divisional application, because of the grant of the Johnson patent containing these claims, the Patent Office having inadvertently failed to declare an interference between the Johnson application and the original Warth application while the latter was pending. As pointed out in our main brief (p. 9), if such an interference had been declared, Warth would then, *while his original application was pending,* have had knowledge of Johnson's preheating claims, which then stood allowed, and would then have appreciated the necessity for asserting claims specific to preheating.

Like the inventor in the *Chapman* case, Warth could have presented the preheating claims earlier, had the necessity for doing so been apparent. But also like Chapman, Warth did present the preheating claims before any statutory bar had arisen and well within two years after the Johnson patent issued, as approved by this Court in the *Chapman* case.

Moreover, it would indeed be a harsh application of the equitable rule of laches to recognize Johnson's inadvertently issued patent as creating an intervening right, since the uncontradicted evidence is that Johnson, before the earliest date respondent now asserts for his machines with preheating, visited petitioner's plant where he observed the use of the Warth preheating method and thus acquired knowledge of it. (Main Br. p. 32.)

II. Respondent's Argument (Br. pp. 14-22) that the Divisional Patent is Not a Proper Division of the Warth 1930 Application and that the Latter is Not a Proper Division of the Original Warth Application.

Respondent's argument (Br. pp. 18-22; pp. 40-43) on the right of a patentee to file a divisional application "after a patent has once issued" omits consideration of what constitutes a very important fact here; that is, that before the Warth parent patent issued, he had filed a divisional application continuing the disclosure of preheating and that such divisional application was pending when the application for the divisional patent for preheating was filed. Consequently, from the filing date of the original application until the grant of the divisional patent, there was continuously before the Patent Office, in a pending Warth application, a disclosure of the preheating method.

Admittedly, if there had been no such continuing disclosure, the divisional patent would not have been entitled to the filing date of the original application.[1]

The cases cited by respondent (Br. pp. 19-21) are not in point, because they merely state the rule that there must be continuity of disclosure and with this we agree. For instance, in *Spitteler* v. *Krische,* 1908 C. D. 374 (Resp. Br. p. 20), the Court of Appeals said that "there was no application pending in the Office as a foundation for a division." And in *Wainwright* v. *Parker,* 1909 C. D. 379, the Court said "there was nothing left pending before the Patent Office upon which it could act, or to which the latter application could attach". That also was the rule followed in *Gladding-McBean* v. *Clark,* 16 F. (2d) 50 (Resp. Br. p. 19).

On the other hand, where, as in the case at bar, **the disclosure has been continuous through successive applications, the settled Patent Office practice approved by the Courts is to give to each divisional applica-**

[1] However it would be entitled, at least, to its own filing date.

tion the benefit of the filing date of the original application.

This practice is clearly set forth in the decision of the Board of Appeals of the Patent Office in *ex parte Replogle*, 25 U. S. Pat. Q. 121 (July 23, 1932), which is quoted in the appendix, pages 41-44. In that case, there were three applications designated as A, B and C. Case C was not filed until after Case A had matured into a patent. It was copending, however, with Case B, which was filed before Case A matured into a patent. Because of this continuity of disclosure, Case C was given the benefit of the filing date of Case A. The Board of Appeals said:

> "Appellant having pending in this Office a continuing chain of applications A, B and C which describe the common subject-matter and to which claims could have been directed at any time, we do not consider that there is evidence of either abandonment of the subject-matter. * * * or of dedication to the public."

The Board of Appeals also said "* * * claiming is not necessary, but only the presentation of the common subject-matter in a continuing chain of applications" to entitle the last of the three filed applications to the benefit of the filing date of the original application.

Therefore, when the Patent Office accorded Warth's application for the divisional patent the filing date of his original application, it was following its established practice.

The practice followed by the Patent Office in the *Replogle* case was specifically approved in each of the following cases:

> *Benedict* v. *Menninger* (C. C. P. A.) 64 F. (2d) 1001;
> *Field* v. *Colman*, 40 App. D. C., 598.

In *Benedict* v. *Menninger, supra*, the Court accorded an application filed in 1927 the benefit of the filing date of an earlier application filed in 1923, with which the 1927 case was *not* copending, because, as in the case at bar, there had been an intervening application copending with both. The Court said (1002, 1003):

"It is conceded that both the Menninger application of May 8, 1923, and that of December 10, 1925, disclose the subject-matter of the counts, but same was not specifically claimed in either. Claims of the first may have been broad enough to include it.

* * *

"It thus appears that from May 8, 1923, Menninger has had continuously pending in the Patent Office applications disclosing the subject-matter of the counts with the right, so far as disclosure is concerned, to make the claims at any time. *Continuity of dislosure* was preserved. Field v. Colman, 40 App. D. C. 598; Alexander Milburn Co. v. Davis-Bournonville Co., 270 U. S. 390, 46 S. Ct. 324; 70 L. Ed. 651."

A. Disclosure of an invention in an application, even without a claim therefor, is sufficient basis for a divisional application for that invention.

Respondent's argument (Br. 16-17) contradicting the foregoing proposition, is directly in conflict with each of the decisions referred to, *ante* page 10, and particularly the decision of this Court in *Chapman* v. *Wintroath*, 252 U. S. 126, where this Court specifically said that a divisional application is entitled to the priority of the parent application even though the invention of the divisional case was "not claimed therein."

Respondent's statement (Br. p. 17) that "the Circuit Court of Appeals in the case at bar followed what we understand to be the well settled rule viz., that a divisional application to be availed of must be for the same invention and must claim it" shows clearly the error into which that Court fell.

What the Court of Appeals did was directly in conflict with the rule which has been followed for over fifty years by the Patent Office and the law as laid down by this Court in the *Chapman* case. In that case, this Court accorded Chapman's divisional application the benefit of the filing date of his original application, notwithstanding that the subject-matter of the divisional application had not been

claimed in the original application. Chapman had copied into his divisional application claims from the Wintroath patent and this Court said (p. 126) that "the combination of the Wintroath patent was not specifically claimed [in the original Chapman application]".

The decisions cited by respondent (Br. pp. 17-18) do not support respondent's contention that a divisional application must be directed to subject-matter *claimed* in the original application. *In fact, if they did, they would be overruled by the Chapman decision of this Court.*

Respondent's quotation (Br. p. 17) of a *part* of a sentence from the *Milburn* case is grossly misleading. Removed from its context, respondent's quotation appears to state the antithesis of what this Court actually held, namely, that a claim is *not* necessary to establish a reduction to practice date. We reproduce below the context, with respondent's quotation in brackets:

> "The question is not whether Clifford showed himself by the description to be the first inventor. By putting it in that form it is comparatively easy to take the next step and say that [he is not an inventor in the sense of the statute unless he makes a claim]."

There can be no real excuse for such a deception and incomplete quotation.

In *Jones* v. *Larter*, 1900 C. D. 111 (Resp. Br. p. 17), the question involved was double patenting, since the earlier issued patent described and *claimed* the subject-matter which the applicant sought to protect in his second alleged divisional application. The Commissioner held (at 114):

> "It would seem that these claims covering *the same thing as the claims in the prior patent* and differing therefrom only in scope cannot properly be allowed in this case. To do so would be to allow two patents to the same party covering the same invention."

After pointing out that the subject-matter was described in the original patent, the Commissioner said (at 115):

> "This was clearly a case where the claims could probably be made by reissue if at all * * *."

Consequently, although the quotation from *Jones* v. *Larter*, as removed by respondent from its context, might *appear* to conflict with the practice followed by the Patent Office in the case at bar, it does not do so, *in fact*, as study of the decision clearly shows.

Nor does *ex parte Stimson*, 1916 C. D. 20, cited by respondent, (Br. p. 18) support its position. In that case, the Commissioner merely refused to permit claims for another invention to be injected into a pending application in which claims to one invention had already been allowed, since this would result in a single application with claims therein to two entirely separate and distinct inventions. But the Commissioner *did not hold that Stimson could not file a divisional application presenting such claims, and in such application, be entitled to the filing date of the pending allowed application.*

Indeed, he could not have so held without directly overruling *Hopfelt* v. *Read*, 1903 C. D. 319, 321, where the Commissioner had said:

> "The fact that the Office practice may prohibit the prosecution and allowance of the claims in an earlier application *does not prevent an applicant from availing himself of the earlier date of filing* as his date of constructive reduction to practice *when he files a later application containing the same description and the claims based upon the same.*"

B. Warth's divisional applications complied with the Patent Office rules to the satisfaction of the Patent Office.

Respondent (Br. p 14) charges generally that Warth did not comply with the Patent Office rules as to divisional applications. It also argues that the statement in the divisional patent that it is a division of the 1930 divisional application and that that, in turn, is a division of the original application, is clearly erroneous.

Obviously, the Patent Office does not agree with respondent, since it endorsed the Warth divisional patent with

the alleged erroneous statement,[1] as shown on the face of the patent (I, 554). Furthermore, in recognition of the correctness of that statement, the Patent Office, in Warth's interference with Johnson, accorded the divisional patent the filing date of the original application (II, 660 *et seq.*).

Clearly, therefore, the Patent Office considered that the Warth divisional applications sufficiently complied with its rules and procedure and they did so comply. Even if they did not do so completely, the Patent Office has waived any objection thereto, a thing which the Courts have recognized that the Patent Office may do without affecting validity of the patent. See cases cited, *post*, page 19.

Respondent also suggests (Br. p. 15) that the Warth 1930 application was not a proper division because, while the Patent Office had required claims for the adhesive *per se* to be divided out of the original application, the 1930 application claimed the adhesive as applied to a strip material.

There is no point to this criticism, since divisions may be filed even though not required by the Patent Office. In each of the cases of *Chapman* v. *Wintroath* and *Overland* v. *Packard*, divisional applications were approved by this Court, *though they had been filed without Patent Office requirement.*

Warth, therefore, was free to file a divisional application for *any separate invention disclosed in his original application*, and he was not restricted to the one referred to in the Patent Office requirement for division.

Respondent also suggests (Br. p. 15) that Warth's statement in the original application, when cancelling the adhesive claims (III, 1251), was not notice of a possible divi-

[1] This file endorsement was pursuant to Commissioner's Orders No. 1832 and No. 2010 quoted in the appendix pp. 44, 45. As the orders show, the endorsement is an act requiring the exercise of judgment on the correctness of the specification statement that the application was a division since the orders do not permit an improper reference.

sional application on any separately patentable portion of his method, including preheating. This is wholly immaterial. **We know of no rule, decision or statute requiring an applicant to state in his application what parts of his disclosure he may, in the future, embody in divisional applications.** In fact, Rule 44 of the Patent Office[1] specifically prohibits reservation of disclosed subject-matter for a future application.

Moreover, it has always been recognized, both by the courts and the Patent Office, that procedural rules, such as those to which respondent refers and which include Rule 43 mentioned by respondent (Resp. Br. p. 57) do not affect the status of a patent issued without strict compliance therewith.

For instance, speaking of failure to comply with a Patent Office Rule relating to supplemental oaths, the Court, in *Heller Bros.* v. *Crucible Steel* (297 F. 39, 43; C. C. A. 3) said:

> "At most, as we understand it, it is but a rule of Patent Office procedure, promulgated upon the authority of R. S. §483 (Comp. St. §745). If valid, and we deem it unnecessary to pass upon that, it has no bearing upon the question of validity of a patent when issued."

See also *Heap* v. *Tremont et al.*, 82 F. 449, 459, (C. C. A. 1); *Deere* v. *Arnold*, 95 F. 169, 170, (C. C. N. D. N. Y.).

In *Ex parte Roberts*, 1887 C. D. 61, 63, the Commissioner said:

> "Rule 42 [now Rule 43] provides that when there are two or more applications pending—
>
> relating to the same subject-matter of invention, all showing but only one claiming the same thing, those not claiming it must contain disclaimers thereof, with reference to the application claiming it.

[1] 44. A reservation for a future application of subject matter disclosed but not claimed in a pending application will not be permitted in the pending application.

"But there is nothing in the rules, nor is there any statutory provision to the effect that a failure to file such disclaimer should deprive applicant of his right to a patent, *or invalidate one issued upon the second application. The rule does not and could not constitute a statutory bar*".

III. Respondent's Argument (Br. pp. 22-24) that the Johnson Patent Properly Issued Without an Interference With the Original Warth Application.

Respondent denies that allowed claim 35 of the Johnson application should have been suggested to Warth while his original application was pending and an interference declared, as asserted in our main brief (pp. 8, 9). Respondent either misses the point or is unaware of the Patent Office rules and procedure with respect to interference declarations.

Our point is that an interference should have been declared on claim 35 of the Johnson application, which stood allowed *when the* **Warth** *application was ready for allowance and before the* **Warth** *patent was issued.*

It is the practice of the Patent Office to make a search through copending applications before issuing any patent, as respondent agrees (Resp. Br. p. 24). The unassailable fact is that on December 11, 1930 when the Warth original application was allowed (III, 1288), this dominating claim 35 (II, 713) stood allowed[1] in the Johnson application and should have been suggested to Warth under Patent Office Rule 96 (Main Br., p. 43), *particularly since the Johnson application was not filed until over two years after the Warth application.*

Consequently, respondent's argument (Br. p. 24) that, when the *Johnson* patent issued, there were *then* no Warth method claims on file, is entirely beside the point. The important fact is, as we have just stated, that there was an

[1] It had been allowed in the official action of September 10, 1930 (II, 717).

evident and undeniable conflict between the original Warth and the Johnson applications when the *Warth* original application was ready for allowance and this conflict should have been settled by the declaration of an interference before the parent Warth patent issued. If that had been done, Warth would *then* have seen, and asserted the preheating claims which then stood allowed in the Johnson application and the question of priority would have been settled without delay and before the Warth parent patent issued. Certainly *petitioner* should not be charged with laches or abandonment of invention because of this inadvertent omission by the Patent Office.

IV. Respondent's Argument (Br. pp. 24, 25) that the Cancelled Preheating Description in the File of the Original Warth Patent Was a "Publication."

Respondent first argues that, since the entire file wrapper of the Warth application for the parent patent was open to the public on the grant of the patent and thus became a matter of public record, anyone examining the file would note the cancellation of the preheating matter therefrom and "would naturally assume that this matter and any claims therefore were abandoned by the inventor and dedicated to the public."

Since there is no statute or rule requiring an applicant, when cancelling subject-matter from an application, to state that he intends to file a divisional application covering such subject-matter, any such "assumption" as respondent urges would be wholly unwarranted. Therefore, respondent's suggestion as to what one *might* unwarrantedly assume does not justify an inference that Warth intended to abandon the subject-matter, as we show page 19 *ante*. To establish abandonment, intent must be *proved* and is not to be presumed.

Furthermore, as to the laches defense, it is immaterial whether one *might* or "would naturally" make such an assumption, since, to establish laches, it must be shown that

someone was, *in fact*, thereby misled into doing something which otherwise would not have been done (*Galliher* v. *Cadwell*, 145 U. S. 368, 372, 373—Main Br. p. 21). **Respondent does not even suggest that it, or anyone else, was so misled.**

The necessity for such a showing is emphasized by this Court in the *Webster* case, where, by analogy to an application for reissue, the Court said (at p. 567) that one " 'who seeks to revive his right which he has allowed to lie unclaimed' " is deprived by laches " 'from enforcing it to the detriment of those who **have**, in consequence, **been led to act** as though it were abandoned'."

The Patent Office file wrapper is not a "printed publication" within the meaning of the statute (R. S. 4886).

Respondent (Br. p. 54) makes the wholly unwarranted assertion that the Warth parent application is a "printed publication" within the meaning of the statute (R. S. Sec. 4886), evidently intending to suggest that the cancelled preheating description in the original patent file is, therefore, a statutory bar to the divisional patent, being part of a "printed publication."

An inventor's right to a patent is not barred if the invention becomes known more than two years before he files his application provided such knowledge is not obtained from a "*printed* publication" or by a "public use" or "sale" of it more than two years before his application (R. S. Sec. 4886). As this Court said in *Elizabeth* v. *Pavement Co.*, 97 U. S. 126, 136:

> "* * * It is not a public knowledge of his invention that precludes the inventor from obtaining a patent for it, but a public use or sale of it. In England, formerly, as well as under our Patent Act of 1793, if an inventor did not keep his invention secret, if a knowledge of it became public before his application for a patent, he could not obtain one. To be patentable, an invention must not have been known or used before the application;

> but this has not been the law of this country since the passage of the act of 1836, and it has been very much qualified in England. Lewis v. Marling, 10 B. & C. 22. Therefore, if it were true that during the whole period [six years, p. 133] in which the pavement was used, the public knew how it was constructed, it would make no difference in the result."

Similarly, this Court held in *Corona* v. *Dovan*, 276 U. S. 358, 372, 373, that a paper read before a chemical society, but not published as a "printed publication" more than two years before the application date of the patent in suit, was not a defense under the statute.

In *Fessenden* v. *Wilson*, 48 F. (2d) 422, 425 (C. C. P. A.) the Court specifically held that a description in the file wrapper of a patent, but not appearing in the patent because of cancellation during the prosecution, is not a "printed publication" under the statute (R. S. 4886). The Court said:

> "For obvious reasons, the filing of an application, the description of which is canceled before it results in a patent or comes to the public notice, is not such a published description of the invention as is within the inhibition of the statute. [Sec. 4886.] Milburn Co. v. Davis-Bournonville Co., supra."

Consequently, it is not true that the file of the application for the Warth parent patent is a "printed publication" and thus a statutory bar within the meaning of the statute (R. S. 4886). Nor is it material for how long the public may have known of the preheating invention from the Warth application file before Warth filed his divisional application, since that file has no more adverse effect under the statute (R. S. 4886) than an oral description of the Warth invention or a public experimental use thereof would have had.

V. Respondent's Argument (Br. pp. 26-32) that There Were Adverse Intervening Rights Against the Divisional Patent.

In an attempt to disprove our statement (Main Br. pp. 10, 11) that there were no adverse intervening rights more than two years before the application for the divisional patent was filed, respondent asserts that machines operating according to the preheating invention were so used by it and others.

In urging this defense here, respondent asks this Court to review an issue of fact decided adversely to respondent by the District Court on conflicting evidence[1] and without contrary finding by the Court of Appeals, although respondent strenuously contended before that Court that the finding of the District Court was in error.

Every argument advanced here by respondent on the point of adverse intervening rights was expressly considered and rejected in the opinion of the District Court, who saw and heard all of the witnesses.

The District Court said (III, 1803):

> "The machines purchased by defendant from Johnson in 1928, had no preheater, and I am convinced that defendant made no further purchase[2] from Johnson until 1933, therefore the defendant has not proved any use of the preheating method, to anticipate the filing date of the first divisional application Nov. 7th, 1930 or the filing date of the second divisional application April 4, 1933."

---

[1] In its brief before the Court of Appeals, respondent said: "Plaintiff contended and the Court below found *on conflicting evidence* that the first machine bought from Johnson by defendant did not have a preheater."

[2] Respondent's assertion (Br. p. 27) that this statement is plain error is based on the letter rather than the obvious meaning of the Court's language. Since preheating was the subject-matter of the finding, the Court's reference to "further purchase" clearly refers only to machines with preheating. As we show, *post*, pp. 26-31, the Court's finding as to machines with preheaters is correct.

We submit that this Court should accept this undisturbed finding of fact of the District Court in accordance with the ruling in *Adamson* v. *Gilliland*,[1] 242 U. S. 350, 353:

> "Considering that a patent has been granted to the plaintiff the case is preeminently one for the application of the practical rule that so far as the finding of the master or judge who saw the witnesses 'depends upon conflicting testimony, or upon the credibility of witnesses, or so far as there is any testimony consistent with the finding, it must be treated as unassailable' (citing) Davis v. Schwartz, 155 U. S. 631, 636."

Respondent argues (Br. p. 26) that, because the two lower Courts disagreed on issues *other* than intervening rights, this Court should disregard the rule of *Adamson* v. *Gilliland* and now re-examine the record on this fact issue of intervening rights. In support of its position, respondent cites *Thomson Spot Welder* v. *Ford*, 265 U. S. 445 and *Berlin Mills* v. *Procter & Gamble*, 254 U. S. 156. In the former case, two Courts of Appeals had reached different findings as to the fact of invention, and this Court decided that, under such special circumstance, there should be an exception to the well-settled rule, and so it examined the record to resolve the conflict. In the latter case, there had been a similar conflict of opinion as to the fact of invention, the District Court and one of the Judges of the Court of Appeals disagreeing with the other two Judges of the Court of Appeals on this fact.

Consequently, neither of the cases cited by respondent is applicable to the case at bar, where the District Court's finding was not disturbed by the Court of Appeals.

---

[1] The cases are uniform to the effect that this Court accepts a finding by a trial court or a master made from conflicting evidence involving the credibility of witnesses, where the finding has not been disturbed by the Appellate Court. *United States* v. *United Shoe Machinery Co.*, 247 U. S. 32, 37, 41; *Mason* v. *United States*, 260 U. S. 545, 556; *Cramer* v. *United States*, 261 U. S. 219, 226.

The record supports the District Court's finding that there is no proof of adverse intervening rights.

In case this Court should desire to examine the record to ascertain whether there is support for the finding by the District Court that adverse intervening rights had not been proved, we state the facts and answer respondent's arguments on the point as follows:

Preliminarily, we point out that, in order to invalidate a regularly-issued patent, proof of prior use must be free of any reasonable doubt.[1] Intervening rights are, of course, only a species of prior public use.

It should also be noted that, to prove intervening rights against the divisional preheating patent, it is not sufficient merely to show that "spotting machines" were used or sold. It must be shown that such machines were designed and operated so as to apply heat to the spot by means of a PREHEATED CORK, which is the distinctive step of the invention of the divisional patent.

1.—ALLEGED INTERVENING RIGHTS ARISING FROM RESPONDENT'S ACTIVITIES.

Respondent asserts (Br. p. 27) that certain machines purchased from Johnson and used by it in 1928 and 1929 (Exh. Q., R. p. 881, 882) had means for preheating the cork. There is no physical or documentary evidence of this. The machines in question are identified in the invoices (Exh. Q.) merely as "assembling machine", admittedly a term applied to machines used to insert *cork discs in the metal shells* of the caps and *not* to apply spots to the cork. The machines are not in evidence and no excuse was given for failure to produce them.

Respondent asserts, however (Br. p. 27), that the designation "extra head, roll feed" on the invoices of these 1928, 1929 machines shows that "the machines had the preheat-

---

[1] *Cantrell* v. *Wallick*, 117 U. S. 689, 696; *Radio Corp.* v. *Radio Laboratories*, 293 U. S. 1, 8; *Barbed Wire Patent Case*, 143 U. S. 275, 284.

ing device". Obviously, the phrase "extra head, roll feed", in itself, does not identify the machine as being a "spotting" machine and much less a spotting machine utilizing preheating. Nor is there any testimony which connects this quoted phrase with either a spotting machine or one utilizing preheating. The testimony (XQ's. 479/87, (I, 260-261) cited by respondent (Br. p. 27) in no way relates to the phrase "extra head, roll feed" or even to the invoices which carry it.

The complete answer to respondent's assertion as to the September 1928-1929 machines of the invoices, Exh. Q, is to be found in the testimony of respondent's witness Johnson (I, 173) that, **prior to October 5, 1928,** when he was experimenting with a machine previously sold to Armstrong, **no machine sold by him had means for preheating the cork** (XQ. 121).

Respondent's Secretary, Cohn, testified that the mechanism in the machines of Exh. Q for applying center spots *"was the same as on the previous machine"* (I, 214, Q. 93). The "previous machine" referred to is the Exh. P. machine purchased in August, 1928 (II, 880) which, *by Johnson's own admission* (I, 13) *did not have means for preheating the cork.* Johnson's admission applies, of course, also to the September 15 machine of Exh. Q (I, 282), and Cohn's testimony indicates that *all* of the machines of Exh. Q were alike, so far as the spotting mechanism is concerned.

Furthermore, if the testimony of respondent's Vice-President, Cohn, that the Exh. Q machines had apparatus to carry out the preheating method be accepted, that leads to a flat contradiction of other testimony by Cohn, in which he is corroborated by another witness, for the following reason:

Cohn has a patent No. 1,921,808 (I, 596), which discloses a method of inserting cork discs in the metal shells, and then the application of spots to the cork, all *in the same machine.* Cohn, in answering Interrogatory 4 (I, 573), swore that the method of this machine had not been used

prior to March, 1932,[1] and Rasmussen, respondent's superintendent, corroborated this (I, 283). Moreover, Cohn, in his application oath, for the Cohn patent, had, of course, sworn[2] that his invention had not been in use for more than two years prior to its filing date of July 20, 1932.

If the testimony of Cohn that the 1928-1929 Exh. Q machines had preheaters be correct, then, since Cohn says (I, 214, Q. 93) that the Exh. Q machines were spotting machines and had also "mechanism for inserting cork discs into the metal shells after the manner of the Clark-Johnson type assembling machines", he is saying that these mechines operated in accordance with the method of the Cohn patent. Therefore, if, as respondent now asserts, the Exh. Q machines were operated in 1928 and 1929 as preheater spotting machines, such assertion is in flat contradiction to its proofs as to the Cohn method which the same witnesses swore had not been used prior to 1932.

In any event, **all of respondent's evidence as to these 1928, 1929 Exh. Q machines, is merely oral testimony of biased witnesses taken seven years after the event without even explanation of the failure to produce the machines and without any corroborating contemporaneous documentary evidence referring to the invention respondent seeks to anticipate.**

Respondent further asserts (Br. 29) that the testimony of a number of witnesses and certain paper exhibits show that a large number of caps with center spots secured by gutta percha "*by the preheating method*" had been made and sold by respondent between *August, 1928*,[3] and the date of the trial.

---

[1] We do not accept this 1932 date as proved. It is supported only by the oral assertions of these two biased witnesses. We use it here merely to show the conflict here between respondent's evidence and its present assertions.

[2] Patent Office Rule 46—Appendix, p. 44.

[3] None of these witnesses even asserted that the caps were made by machines other than those obtained from Johnson and Johnson has testified that (I, 173) that no machine made by him prior to October, 1928 had preheating.

Of the witnesses and exhibits referred to by respondent, the testimony of Ketterer (I, 200) can be eliminated at once, because he merely testified to the purchase of spot crowns from respondent and made no reference to, nor indeed did he have any knowledge of, the method used in making them. The same is true of respondent's Exhs. NNN to TTT (III, 1519-68), because these are merely invoices for spot crowns and, of course, throw no light on their method of manufacture.

The testimony of Cohn (I, 214) we have discussed *supra* and have shown (1) that, if accepted as proving the 1928-1929 machines of Exh. Q to have been spotting machines, it is inconsistent with the Cohn's application oath and sworn answer to Interrogatory 4, and (2) that, in any event, it proves that these machines to have had means for applying the spots like earlier-purchased machines which admittedly did not use preheating.

The testimony of Cohn at I, 258, 259 and Eisen at I, 294 and Rasmussen at I, 281, refers only to a different method to which respondent was obliged to resort, in 1928 at least, for a secondary treatment of *already*-manufactured spot crowns made on a machine purchased from Johnson in July, 1928 and which admittedly did not use preheating. **In other words, this testimony cited by respondent has no bearing whatsoever upon the use of the preheating invention.**

Respondent (Br. p. 30) also refers to its Cohn patent 1,921,808 (I, 596), but does not state what bearing it has on the issue of intervening rights. This Cohn patent was not even applied for until July 20, 1932, less than a year prior to the filing date of the Warth divisional patent and, therefore, is not a bar to the Warth patent under the doctrine of *Chapman* v. *Wintroath,* or under the statute (R. S. 4886). Furthermore, as has been shown, respondent's proofs are that the method of this patent was not used prior to 1932.

2.—Alleged Intervening Rights Arising From Johnson's Activities.

Respondent also contends that the record shows sale and use by others than respondent, of Johnson machines embodying preheating more than two years prior to the filing date of the application for the divisional patent. Rejecting this contention, the District Court held (III, 1803):

> "There is no evidence to show that the Johnson machines sold to others than plaintiff and identified on the list had a preheater, or what was their construction, aside from Johnson's statement, which he changed under cross-examination."

Johnson testified (I, 171-173) that, in March, 1928, he sold a machine to a Cuban concern. He admits that this machine did not utilize preheating the cork. He also testified that, in April 1928, he sold a machine like the Cuban machine to the Armstrong Company. The Armstrong machine was returned as unsatisfactory. According to Johnson's testimony, partially quoted by respondent (Br. 28), Johnson attempted to make this returned machine work. In a letter (Exh. 36—II, 609) written October 5, 1928, Johnson had said:

> "* * * I now have to see what I can do in regard to not having the tinfoil discs stick to the punch."

Johnson also said (I, 173) that he installed two heaters in front of the punch and that he did this about October 5, 1928.

There is no documentary or other physical contemporaneous proof to substantiate Johnson's statements nor is he corroborated by any other witness. Johnson testified that he did not return the machine to Armstrong (I, 172), but that he "made some changes on it" and "sent it to some other customer" (X-Q. 112). The record is silent as to (a) *what* changes were embodied in the machine alleged to have been "sent", (b) *when* the machine was completed and

used (use being essential to anticipate a method), and (c) *to whom* the machine was shipped.

Johnson's uncorroborated oral testimony, seven years after the event, falls far short of proving public use or sale of a particular invention.

In an attempt to support Johnson and prove the sale of other machines by Johnson, respondent (Br. 28, 29) refers to certain affidavits (Exh. U—II, 901-918) filed in the Patent Office in connection with a petition to institute public use proceedings. Not one of these affiants[1] was called as a witness and, obviously, affidavits of this character are not evidence as to the truth of the facts set forth therein. Exhibit U merely proves that such affidavits were filed in the Patent Office.

VI. Respondent's Argument (Br. pp. 30-32) that Petitioner Knew in 1930 that Respondent Was Making and Selling Center Spot Caps and Should Have then Ascertained the Method Respondent Was Using.

While it may be true that respondent was selling center spot caps in 1930 and that this was called to the attention of some of petitioner's employees, that is wholly immaterial as to any issue here.

Obviously a center spot crown does not, *per se*, show how it is made and, in particular, it does not show how or when the heat is applied to the spot in the manufacture of the crown. In fact, *petitioner* was making and selling spot crowns *before Warth's preheating invention*, so that, clearly, the mere existence of a spot crown does not even suggest that a preheating method was used in its manufacture.

Obviously, respondent recognizes this to be the fact, and so it asserts (Br. p. 31) that "It was petitioner's duty to have then ascertained what method respondent was using".

---

[1] Except Johnson who identified his affidavit (I, 165) but contradicted the same under cross-examination (I, 173).

Respondent does not explain wherein this "duty" arose nor *how* such knowledge was to be obtained. Respondent's caps are manufactured in its own plant and certainly there is no suggestion that petitioner had access to that plant or any right to invade it.

Respondent's statements (Br. p. 32) as to the visit of petitioner's Vice-President and counsel to respondent's plant on August 8, 1933, is entirely beside the point because the Warth preheating divisional application had been filed previously (April 4, 1933) so that any information obtained by petitioner's officer at the time of that visit is wholly irrelevant on the question of laches. The uncontradicted testimony (I, 521) is that, prior to filing the divisional preheating application, petitioner had no knowledge of the method respondent was using.

VII. Respondent's Argument (Br. pp. 33-35) that Petitioner's Laches Began With Johnson's Building of Machines for Petitioner in 1929.

Prior to 1929, petitioner's spotting machines had been built in its own plant (I, 521). In 1929 petitioner needed additional machines for its Canadian plant and had Johnson build them (I, 522). These machines were simply tested and shipped to Canada (I, 423).

Respondent suggests that the machines differed considerably in construction from the machines used prior to that date by petitioner. There is nothing in the record to support this assertion, but, even assuming that the machines corresponded to the Johnson patent, it will be evident that the spotting mechanism substantially corresponded to petitioner's earlier-built machines. The District Court did *not* find that the machines are "radically" different, as suggested by respondent (Br. p. 34).

In any event, it is quite immaterial whether the machines supplied by Johnson corresponded to machines petitioner had previously built, since, in constructing them, Johnson was merely acting for petitioner.

There is no proof that Johnson had previously built, or was at that time building, preheating machines for others.

As we have shown (Main Br. 22-23) *use* of the preheating invention by petitioner more than two years before filing the divisional application did not invalidate that patent. Clearly, if the patent was not invalidated by petitioner's *use*, it was not invalidated by petitioner's building machines for such use, and it is equally clear that the legal effect was the same when it had its machines built for it by someone else at another plant.

VIII. Respondent's Argument (Br. pp. 36-39) that Its Purchase of Machines from Johnson Before the Issue of His Patent Gives Respondent a License Under the Warth Divisional Patent.

A. The Warth-Johnson interference.

Respondent contends that, because it purchased machines from Johnson before the Johnson patent issued and petitioner later purchased the Johnson patent, respondent has a license under Warth's divisional patent claims which were awarded Warth by the Patent Office in an interference with the Johnson patent.

In making this argument, respondent insinuates that the Johnson-Warth interference was a collusive proceeding.

It is not a fact, as respondent asserts (Br. p. 36), that the Warth-Johnson, interference was not *bona fide*. It was instituted before petitioner purchased the Johnson patent. The agreement to purchase the patent was entered into on December 12, 1933 (II, 925), whereas the interference had been previously declared on April 20, 1933 (III, 1337), and petitioner did not receive title until after the interference terminated (p. 34 *infra*, footnote).

The record shows that Johnson, in order to avoid litigation, sold his patent to petitioner while the interference was pending (I, 164; 334) and received a license under the Warth parent patent, as well as under claims which might

be obtained by Warth in the interference.[1] In accordance with a stipulation, the matter was then submitted to the Patent Office (III, 1616) on a record involving, as the only issue, whether the original Warth application filed in 1927 disclosed the subject-matter of the claims, which respondent now admits was the fact. The Examiner of Interferences held that the original application disclosed preheating, and, accordingly, awarded priority to Warth (III, 1660).

The charge of collusion was made before the District Court and also before the Court of Appeals. The District Court found that the award of priority was in accordance with the facts and that petitioner acted as it should have done in submitting the matter for final decision to the Patent Office (III, 1880-1802).

It simply is not the fact, as respondent asserts, (Br. p. 36) that petitioner "could have and should have," under Patent Office Rule 94, determined by election the question of priority between Johnson and Warth. Under the rule, petitioner could not have elected in favor of Warth since the Johnson patent had issued. The decision of the Commissioner in *Chillis* v. *Weisberg*, 1928 C. D. 24, cited by the District Court (III, 1801) so interprets the rule and that decision fully supports the action of petitioner in submitting the matter for determination by the Patent Office as it had to do, under the decision, knowing that Warth was the prior inventor.

Although now attacking the interference as collusive, respondent has not even attempted to offer evidence showing invention of preheating by Johnson prior to the filing date of the original Warth application. The admitted disclosure of the invention by Warth in his original application, therefore, under the rule of this Court in *Chapman* v. *Wintroath, infra,* establishes him as the prior inventor.

Respondent's attack upon the Warth-Johnson interference, therefore, is without merit, since it does not question

---

[1] Under the agreement with Johnson, the assignment of the Johnson patent and the license to Johnson were put in escrow (I, 335) until final determination of the interference in the Patent Office. It remained in escrow until the Patent Office awarded the claims to Warth, the Patent Office being fully informed as to the situation (I, 335). The District Court so found (III 1800, 1801).

the propriety of the award to Warth or the fact of Warth's 1927 application disclosure of the preheating invention which is the basis for that award.

B. Respondent's claim to a license.

Respondent first says that it is licensed under the Johnson patent by reason of the purchase of machines from Johnson before the Johnson patent issued.

Then, in some way not clear to us, respondent proceeds to the conclusion that it is also licensed under the Warth divisional patent, because the Johnson patent is now also owned by petitioner.

We have already shown that Warth preceded Johnson by nearly two years, and, therefore, is clearly the inventor of the subject-matter of the divisional patent claims. Consequently, such claims were invalid in the Johnson patent, as the record plainly shows.

Respondent's claim to a license is based solely upon its relationship with Johnson, *i. e.*, the purchase of machines from him. Obviously, any license which respondent obtained by such purchase could not extend beyond inventions which Johnson owned. He did not own the preheating invention, since the Patent Office found that the claims thereto in the Johnson patent were improperly granted to Johnson and that Warth was the prior inventor. In other words, by the interference decision, the preheating claims of the Johnson patent were, in effect, cancelled from the Johnson patent. *Petitioner's ownership of the preheating invention is not through the claims thereto improperly issued in the Johnson patent, but through the grant of such claims in the Warth divisional patent.*

Petitioner was in no wise a party to the transaction between Johnson and respondent or to the improper issuance of the preheating method claims in the Johnson patent. Therefore, when petitioner acquired the Johnson patent after the preheating method claims, in effect, had been cancelled therefrom (*ante*, p. 34, footnote), that transfer

gave respondent no rights under petitioner's preheating invention which Johnson did not and never had owned.

If respondent were being sued on the *Johnson* patent, the defense of license might apply, and the decision cited by respondent (Br. p. 36) would be in point. But this suit is on the *Warth* patent, and respondent's plea of license thereunder is really that the purchase of the Johnson patent by petitioner gave respondent greater rights than it had previously derived from Johnson or which Johnson had ever been in a position to give.

In *Hartford-Empire* v. *Nivison*, 58 F. (2d) 701, 705, 706 (C. C. A. 6th), the facts were the same as in the case at bar and the same contention made by respondent here was rejected. The Court said:

> "It is claimed that the defendant occupies the status of a licensee. The trial court denied the contention. It is true, of course, that the defendant as purchaser of a Miller feeder acquired a right or license to use that feeder under any patents owned by Miller, who manufactured the feeder, or under any patents of the Miller Glass & Engineering company, which sold the feeder to the defendant. It is, however, equally true that the **purchase of the Miller applications by the plaintiff did not give the defendant, as licensee of Miller, any license to other patents or applications outstanding, and the suit here in question is upon a patent in which Miller had no property interest and which, rightly or wrongly, was held in the Patent Office to take precedence over the Miller applications.** As to whether the plaintiff obtained this ruling in the Patent Office by the use of unfair methods is not for us to determine. For present purposes we accept the Patent Office ruling, in view of which **it cannot be held that the license obtained by the defendant in the purchase of the Miller feeder included the right to use such feeder as against a patent issued upon an application in which Miller had no interest.**"

Just as in the Hartford-Empire case, respondent here is asserting that the finding of the Patent Office in favor of

Warth was obtained wrongfully. **But respondent had full opportunity to show that the Patent Office award was in error and offered no evidence to support such a contention.** On the contrary, it **admits** Warth's prior inventorship, since it concedes that Warth disclosed the invention in his original application long prior to any date claimed for Johnson.

IX. Respondent's Argument (Br. pp. 44-47) Denying Infringement of the Reissue Patent.

Respondent contends that, since it applies heat to the spot by a heated cork, instead of a heated punch, it does not infringe the claims of the reissue patent, and that the Court of Appeals was correct in limiting those claims to a heated punch. In our main brief (pp. 26-32), we have pointed out the error of the Court of Appeals in so limiting the claims.

Respondent has not replied to our analysis of the claims or attempted to justify the Court of Appeals' erroneous interpretation of the claim language discussed in our main brief (p. 27). Respondent takes exception only to our statement that the heated punch was not originally described in the parent Warth application, and, contradicting this assertion, quotes the following language which appeared (III, 1246) in the original specification:

> "In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a *heated plunger* or *a plunger and heated table.* The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork."

Respondent evidently interprets the reference to a heated *plunger* to be equivalent to a disclosure of a heated *punch.* In so doing, it overlooks the fact that the sentence referring to the heated *plunger* deals with the application of heat and pressure "*after* the crown is assembled." That is to say,

this sentence refers to what occurs at the station *following* the punching operation. (See drawing opposite page 5 of our main brief—"Fourth Step"). It was so interpreted by the Patent Office in the prosecution of the Warth divisional application after a question had been raised (III, 1445), as to the justification for the showing of the heated *plunger,* in Figure 6 (III, 1465) of the application drawing, which plunger was described (III, 1434) as "additional pressure means which may be utilized following the action of the punch." Warth's attorneys pointed out to the Patent Office (III, 1455) that this reference to a "heated plunger or a plunger and a heated table" has to do with the operation at the station *following* the punch, and not at the punching station, and the Patent Office agreed.

We have already pointed out (*ante,* pp. 4, 5) that there is no file wrapper estoppel arising out of claim cancellation to compel a limited meaning to the reissue claims and, therefore, need not discuss respondent's arguments on this point under infringement.

Nor need we discuss respondent's statement (Br. 45) as to the effect of an inventor's belief in the scope of his claim as an excuse for delay. That we have fully discussed in our Main Br. pp. 24-26; 33, 34.

Under the guise of support for the assertion (Br. p. 45) that respondent has always used "a cold cutting plunger," respondent's brief (pp. 45, 47) repeats its argument, rejected below, as to an alleged prior use of the Warth invention by respondent in 1924. Respondent uses the question of infringement as an excuse for rearguing rejected evidence of an alleged prior use which the District Court (III, 1788) described as "a temporary makeshift, which was abandoned as soon as it [respondent] was able to perfect the making of the White Rock [mechanically held spot] crown." While several witnesses were examined by respondent in connection with this defense, on the vital point as to the *method by which the spots were adhered to the corks,* respondent's proofs consisted only of the oral

testimny of *two witnesses,* namely, its Secretary, Cohn, and its Superintendent, Rasmussen, given ten years after the alleged defense, based entirely on recollection and without one scintilla of contemporaneous physical corroborating evidence.

The District Court who saw and heard the witnesses fully discusses their testimony (III, 1788, 1789) and rejected this prior use defense on the ground that the:

> "testimony is too uncertain, based only on recollection of what is alleged to have happened ten years before, to furnish proof beyond reasonable doubt, to anticipate the Warth method patents in issue."

The Court further said that whatever respondent did in 1925 was, at most, "an abandoned experiment".

This finding was not disturbed by the Court of Appeals, although the defense was fully presented by respondent before that Court in its attack upon the validity of both patents.

We submit that the rule in *Adamson* v. *Gilliland* (p. 25, *ante*), is particularly applicable here since it is the defense to which the rule was applied in that case. To present all of the facts as to this defense would unduly lengthen this brief, but if the Court desires to examine the record to ascertain whether the undisturbed finding of the District Court was justified, we ask leave to submit a brief thereon.

X. Respondent's Argument (Br. pp. 47-53) that the Warth Patents in Suit Involve no Invention Over the Prior Art.

This defense is so foreign to any questions on which the grant of the writ herein was predicated, that we believe there is no reason for the Court to consider it. The defense was fully exploited in the lower Courts by respondent, and the District Court found against respondent, which finding was not disturbed by the Court of Appeals. The District Court's opinion (III, 1785-1787; 1789;

1790; 1797-1799) contains a full discussion of the prior art on which respondent relies.

If, however, this Court desires to examine this defense, we refer to a separate brief on it which we are filing herewith.

Conclusion.

It is submitted that, for the foregoing reasons, and those set forth in our main brief, the decision of the Court of Appeals below was in error, and that the Court of Appeals should be reversed and the case remanded to the District Court for the Eastern District of New York with instructions to enter a final decree holding both Warth patents valid and infringed.

Respectfully,

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Plaintiff-Petitioner.

APPENDIX.

U. S. C., Title 35, Sec. 69 (R. S. Sec. 4920):

In any action for infringement the defendant may plead the general issue, and having given notice in writing to the plaintiff or his attorney thirty days before, may prove on trial any one or more of the following special matters: * * *.

Fifth. That it had been in public use or on sale in this country for more than two years before his application for a patent, *or had been abandoned to the public.*

Ex Parte **Replogle, 25 U. S. Pat. Q. 121, (Pat. Off. Board of Appeals—July 23, 1932):**

* * * The Examiner has rejected practically all of the claims under rejection on either or both of two former patents of appellant. The first patent is #1,345,550, patented July 6, 1920, and filed June 5, 1916. This patent shows a cleaner nozzle supported on casters having spring connected thereto fitted within pockets of the nozzle structure and these casters are so related to the mouth of the nozzle that air can pass by the casters and into the opposite ends of the nozzle mouth. The patent does not disclose the stroker elements nor the brush shown in the present application. Replogle Patent #1,541,280, issued June 9, 1925, filed August 1, 1924, discloses the spring supported caster as an independent element and the specification states it might be attached to hassocks, carpet sweepers or articles of furniture which are customarily subjected to sliding around the floor of living apartments.

Appellant has referred to a number of applications previously filed by him which are said to be a continuing series of applications all relating to various features of the suction cleaning apparatus. **Appellant relies upon this continuity of applications to overcome the two above referred to Replogle patents used by the Examiner as the principal references in the case.** Three of these applications are re-

ferred to more particularly. Appellant designates as case A the application which eventuated in patent #1,345,550 and as case B an application, Serial #279,467, which eventuated into patent #1,533,271. This latter application was filed February 26, 1919, and the patent issued April 14, 1925. This latter patent was issued just one month later than the date of the present application, case C, March 14, 1925. These two former applications form a continuing chain to the present application of certain common subject matter disclosed in them. The Examiner apparently concedes that the intermediate application, case B, discloses subject matter common to cases A and C. The Examiner holds that it is necessary for appellant to prove the presentation of a *continuing line of* **claims** *to the subject matter herein presented from a time just previous to July 6, 1922, to the filing of the present application.* This date, July 6, 1922, is fixed by two years publication of this subject matter by the granting of the Replogle patent #1,345,550 in July 6, 1920.

Appellant urges that such *claiming* is not necessary but only the presentation of the common subject matter in a continuing chain of applications and relies particularly to support his contention on the decisions in Folberth Auto Specialty Co. v. Mayo-Skinner Mfg. Co., 292 F. 893, and in Hartford Empire Co. v. Obear-Nester Glass Co., 39 F. (2d) 769. The first decision decided the question of two years do not run prior to the date of bar to a divisional application, when the two years do not run prior to the date of the parent application. In the latter decision, it was held that amendments of claims and filing of divisional applications is allowable more than two years after the original application is filed or after the last preceding divisional application is made, but if a stranger obtains a patent more than two years after the original application was filed, then applicant may not amend his original claims (so as to broaden them) nor file a divisional application embracing such claims after two years from date of patent to the stranger.

In accordance with these decisions an apparent statutory bar to the allowance of a divisional application to be effective **must also be a bar to the earlier parent application and a divisional application may be filed at any time,** provided a stranger does not claim the subject matter of the divisional claims in a patent more than two years prior to the assertion of such subject matter in the divisional case.

In the present situation, neither of the applications A, B and C are divisional of the other, but have common subject matter and are therefore continuations-in-part. There seems to be no doubt that appellant would obtain the benefit of the earliest filing date as a constructive reduction to practice of this common subject matter in an interference, Field v. Colman, 1913 C. D. 221. We believe that similarly appellant because of the continuity of applications A, B and C should not be held to be barred from claims to subject matter disclosed in all three.

In accordance with the doctrine announced in Mullen & Mullen, C. D. 1890-9, especially as to the third class of cases therein defined, there is no presumption of dedication to the public if claims to a separate invention are not presented after a patent showing but not claiming such invention was issued and there is no bar of two years' public use or sale nor actual abandonment. By the filing of application #427,088 which presented claims to the subject matter of the character presented on appeal, as well as application B, #279,467 (patent #1,533,271) **disclosing this subject matter but not claiming it, appellant refuted the presumption of dedication to the public of all subject matter not claimed in patent #1,345,550, and appellant having pending in this office in a continuing chain applications A, B and C which described the common subject matter and to which claims could have been directed at any time, we do not consider there is evidence of either abandonment of the subject matter, even though application #427,088 was abandoned, or of dedication to the public.** While the decisions referred to

above relate to divisional applications, we consider that even if the applications are not divisional, but contain common subject matter, that the apparent bar of two years publication should not be applied if it may not be applied to the earliest application in the chain of continuing applications disclosing common subject matter and there is no other evidence of abandonment or dedication to the public and no evidence of intervening rights of some other patentee. We note in this connection the decision in *Lee & Hogan* v. *Vreeland*, 317 O. G. 233. We hold that the rejection on the earlier Replogle patents #1,345,550 and #1,541,280 is not warranted. * * *

Patent Office Rule 46:

* * * In every original application the applicant must distinctly state under oath that to the best of his knowledge and belief the invention has not been in public use or on sale in the United States *for more* than two years prior to his application * * *.

Commissioner's Order No. 1832:

December 3, 1909.

When an application is found to be a division of one previously filed, the examiner will make an entry on the face of the file wrapper, in the place indicated thereon for such entry, of the serial number and filing date of the original application. The headline of the printed specification and the record of assignments will conform to this entry.

Commissioner's Order No. 2010.

October 18, 1912.

When an application is filed which *in the opinion of the examiner* is a division of, a continuation of, or a substitute for a previously filed application but which contains no reference in the specification to such prior application, the examiner will require the applicant to insert the proper reference to the prior application in the specification. If when the case is otherwise in condition for allowance, the request has not been complied with *or has been improperly made,* the proper reference to the prior application will be made by examiner's amendment and the case passed to issue forthwith.

BLANK

PAGE

IN THE

Supreme Court of the United States

OCTOBER TERM 1937.

No. 72

CROWN CORK & SEAL COMPANY, INC., *Plaintiff-Petitioner,*

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent.*

SUPPLEMENTAL REPLY BRIEF FOR PLAINTIFF-PETITIONER ON THE DEFENSE THE PATENTS IN SUIT DO NOT DISCLOSE INVENTIONS OVER THE PRIOR ART.

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Plaintiff-Petitioner.

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

BLANK

PAGE

TABLE OF CONTENTS.

	Page
Foreword	1
Prior Attempts to Make Spot Crowns Commercially	3
The White Rock Crown	3
The "American" Type of Spot Crown	3
New Process Company's Unsuccessful Efforts	4
International Company's Attempts To Make Spot Crowns	5
Johnson's Efforts	6
Petitioner's Discarded Slide Machine	6
The History of the Prior Art Shows That Although There Was a Demand for Center Spot Crowns the Efforts to Produce Them Were Only Failures	7
The Prior Art Relied Upon by Respondent Does Not Anticipate the Warth Method	10
Warth's Alleged Admission of Lack of Novelty	11
Prior Patents on Cork Disc Assembly Machines Do Not Anticipate the Warth Patents	12
Defendant's Argument of Want of Invention	13
Respondent's Reference to Prior Patents on Center Spot Caps	15
Petitioner's Discarded "Slide" Machine Does Not Anticipate the Warth Patents	16
The Warth Patents Do Not Cover a Mere Function of a Machine	18

TABLE OF CASES CITED.

Buffalo Forge Co. v. City of Buffalo, 205 F. 83, 87, (C. C. A. 2)	18
Expanded Metal Co. v. Bradford, 214 U. S. 366	18
Loom Co. v. Higgins, 105 U. S. 580, 591, 592	11
Michigan Carton Co. v. Sutherland Paper Co. (C. C. A. 6th), 29 F. (2d) 179	18
Paramount v. American, 294 U. S. 464	8
Parks v. Booth, 102 U. S. 96, 104	11

BLANK

PAGE

IN THE

Supreme Court of the United States

OCTOBER TERM 1937

No. 72

CROWN CORK & SEAL COMPANY, INC., *Plaintiff-Petitioner,*

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent.*

SUPPLEMENTAL REPLY BRIEF FOR PLAINTIFF-PETITIONER ON THE DEFENSE THE PATENTS IN SUIT DO NOT DISCLOSE INVENTIONS OVER THE PRIOR ART.

This brief is directed solely to respondent's defense that the two Warth method patents in suit are invalid because their disclosures are not inventions in view of the prior art (Resp. Br. p. 47-53).

Foreword.

For an understanding of the Warth patents and their relation to the prior art, it is necessary to appreciate the demand which arose for spot crowns before the inventions were made, the problems involved in the manufacture of spot crowns and the unsuccessful efforts made by skilled workers in the art to satisfy that demand over a period of

many years prior to Warth's successful solution of the problem.

While it is true that crown caps having center spots adhesively united to the cork were suggested in patents at least as early as 1914 (Demuth British Patent 16,075, III—1628), **that left the real and vital problem of cheap, i. e., high speed manufacture, wholly unsolved.**

Center spots for crown caps are particularly desirable for use with caps in which the cork disc is made of so-called "composition cork"; that is, small particles of cork held together by some form of adhesive binder. These composition discs are very much cheaper than discs cut from natural cork. But for many liquids composition cork is unsuitable, due to its tendency to disintegrate and to impart taste to some beverages (I, 354). The use of composition cork for crown caps was known at least as early as 1908 (Jones patent, III, 1634) and since an adhesively held center spot which would enable the use of a composition cork was known at a very early date, the remaining problem was to devise a method by which center spots could be applied to crown caps with composition cork discs (1) *accurately,* (2) *securely,* and (3) *at high speed* (I, 130).

In order to be successful the center spot must be accurately centered on the cork disc. If it is not, it may extend over the entire surface of the neck of the bottle at one side and thus permit leaking, and at the other side would permit the bottle contents to contact with the cork. (See the drawing opposite p. 2 of our Main Brief.)

Moreover, it is not sufficient merely to have the spot *loosely* adhering to the cork. It must closely adhere to the cork, particularly around the edge of the spot, so that it will not be dislodged in the hopper of the capping machine (I, 502), by which machine the caps are applied to the filled bottles at as high a rate as 160 per minute (I, 55).

Finally, it is vital that the spot crowns be made *cheaply,* i.e., *at high speed,* to meet the competition with other forms of corking.

By Warth's patented methods, petitioner is now applying these spots to crowns at the rate of *500 per minute* for each operating unit (I, 64).

Today, thanks to the inventions of the Warth patents in suit, spot crowns are made and sold in tremendous amounts and at a price which seems almost incredible. They sell at from 22 cents to 24 cents a gross (that is, about 6 for one cent), this cost including not merely the center spots, but the entire crown, consisting of the shell with its ornamental printing, the composition cork disc and the center spot (I, 58).

Petitioner's sales are at the annual rate of about nine million *gross* of center spots, which is about thirty per cent of its entire crown production.

Prior Attempts to Make Spot Crowns Commercially.

THE WHITE ROCK CROWN.

This crown, also known as the "Stewart," has been used by the White Rock Company since 1914 (I,) and is illustrated on Exhibit 17 (III, 1600). Only metal foil can be used for the spot, and this limits its use since metal is attacked by acidulated beverages such as gingerale.

The edge of a circular piece of foil is turned up to form a cup, this edge being inserted in a circular slit in the cork, the spot being held mechanically by this inserted edge, and not adhesively, to the cork.

The cutting of the slit necessitates the use of expensive natural cork since composition cork cannot be used.

This type is used only by the White Rock Company and possibly a few others. Though expensive, it is a commercial spot crown but it is entirely foreign to the adhesively-held spots involved in this suit.

THE "AMERICAN" TYPE OF SPOT CROWN.

This is also illustrated on Exhibit 17. Attempts to commercialize it failed and it is not now on the market. Instead of cork, the "cushion" was a rubber ring and the center

member, analogous to a center spot, was a cup-shaped piece of foil with the cup extending into the center of the rubber ring with its edges over the rubber ring, to hold the latter in place. The center of the cup was soldered to the metal of the shell of the cap.

Weisenburg attempted to make this "American" crown in 1916, but was unable to do so commercially (I, 60). Wagner, a former employee of the American Company, tells of its troubles with this crown (I, 427).

NEW PROCESS COMPANY'S UNSUCCESSFUL EFFORTS.

McManus, formerly president of the New Process Company, and now petitioner's president, a man highly skilled in the art and an inventor of standing, attempted to make center spot crowns commercially from 1915 to 1926 (I, 346). He used the facing material of his patent 1,213,926 (1118) and the machine of his patent 1,402,780 (1177). McManus tried paper center spots, with glue and gelatine as the adhesive, and tinfoil spots with an adhesive-coated paper between the foil and the cork (I, 343). He also tried (I, 345) the heat fusible cement mentioned in his patent 1,339,066 (I, 530) and which had been previously employed to unite the cork disc to the shell, but this also was unsuccessful.

In his commercial atempts, McManus used a water-soluble glue and moistened the surface of the cork before placing the glue side of the spot thereon. Though his machine centered the spot initially, a large percentage of them "floated" off center before the adhesive could dry, especially if the machine ran at any high rate of speed (I, 344). His limit was about 40 a minute and the method was costly. McManus' paper spots were parchment and this wrinkled (I, 345) permitting moisture to get through the paper to the cork, spoiling the contents and causing the spots to come off in the bottle (I, 345). The adhesive for the tinfoil spots was also water-soluble and they were subject to much the same manufacturing difficulties as paper.

In spite of double inspection to remove the "off-center" spots, McManus was obliged, in about 90% of the cases, to make adjustments for defective crowns (I, 344) and in the ten years from 1916 to 1926, he sent out no more than possibly 100,000 gross, most of which were tinfoil[1] (I, 346).

INTERNATIONAL COMPANY'S ATTEMPTS TO MAKE SPOT CROWNS.

Defendant's witness Alberti (I, 126, 131), and plaintiff's witness Marsa (I, 353-356) tell the story of the repeated efforts of the International Cork Company over a period of eleven years to manufacture spot crowns in which the center spot is adhesively united to the cork. Their experimenting began early in 1914, and continued until 1925 (I, 354) during which they expended from twenty-five to thirty thousand dollars (I, 356). They always used *wet, heat-set* albumen as the spot adhesive. Several machines were built, culminating in the machine of the Alberti patent 1,401,300 (III, 1449) which was finally abandoned (I, 182). Yet respondent relies upon this patent to anticipate the Warth invention. Alberti was unable to overcome the difficulties involved in producing at high speed which he says was essential for commercial production (I, 130). Clean and saleable spot crowns could not be produced by this machine. With insufficient glue, the spot would not adhere at its edges. With too much glue, bubbles formed at the edges.

The spots could not be accurately centered, and were always on "one side or the other, which would leave the cork exposed to the beverage" (I, 355).

The Alberti machine never left the experimental room and was run at only 40 to 50 caps per minute. Though carefully selected caps were submitted to customers, there were no orders and the experiment was abandoned after

[1] Nagy, for respondent, said (I, 141) that, when he worked for McManus' company in 1916, "It took about a week at that time to make 200 gross and the machine was working steady." Today, using the method of petitioner's patents, Nagy's machines have that output in about 2½ hours (I, 146).

a couple of years and the expenditure of several thousands of dollars. Respondent's witness Alberti says (I, 126) that "along in 1913, '14, '15 and '16", there were no successful center spot crowns except the White Rock, although repeated attempts to manufacture them were made by his company, International Cork Co., also by the New Process Cork Co., and by others.

JOHNSON'S EFFORTS.

Johnson's application for his improperly-issued patent (I, 583) was not filed until November 26, 1929. This was after he had been to petitioner's plant and observed the operation of Warth's method. Johnson had been an inventor and builder of assembling machines for thirty-three years (I, 160). He had been working since 1927 (I, 167) to develop a method for applying spots to crowns, yet as late as the Fall of 1928, after he had sent out unsatisfactory machines to Armstrong and to respondent (I, 213), he was still experimenting (I, 173).

PETITIONER'S DISCARDED SLIDE MACHINE.

This machine is referred to in the decision of the Court of Appeals and is described in our Main Brief (pp. 41, 43). Aside from the White Rock crown (p. 3, *ante*), practically the only commercial center spot crowns were manufactured in petitioner's plant by this machine and the steps employed are illustrated in the drawing opposite page 41 of our Main Brief. Although three of these machines were used for several years by petitioner, the method it employed made manufacture extremely slow and not more than *fifty* or *sixty* caps a minute were produced (I, 371). The method was a constant source of trouble for the reason that the disc did not always fall centrally in the slide and the spot would be picked from the slide so that it could not be properly deposited on the crown by the plunger which heated the spot before it was deposited (I, 371). Although peti-

tioner was constantly at work on the machine over a period of nine years, they never produced satisfactorily (I, 371).

The contrast between the Warth method and that of the slide machine is evident from the fact that by the Warth method the speed of production of petitioner's machine was increased to 420 per minute (I, 372). Subsequent improvement still further increased the speed to over 500 per minute, using the same Warth method.

The History of the Prior Art Shows that Although there was a Demand for Center Spot Crowns the Efforts to Produce them were only Failures.

Aside from petitioner's production of center spot crowns by its so-called "slide" machine, which production was small compared to its production after the introduction of the Warth method (II, 607), there was no manufacture of spot crowns having the center spots adhered to the cork. The efforts of McManus, Alberti, Johnson and others to produce a satisfactory method of manufacture shows the demand over a period of ten years (1915-1926) for a method which would satisfy the requirements of the industry, namely *high speed* production of crowns having the center spots *accurately* and *permanently* adhered. Weisenburg, who had been in the crown cap business since 1916 (I, 52) stated (I, 84) that although there seemed to be no great sale of spot crowns prior to 1927 or 1928,

> "there was a great need for them but we did not know how to make them."

Again, Marsa, formerly with the International Company, explained that their continued unsuccessful efforts to make spot crowns, were prompted by their "**feeling at that time * * * if we could get a thing like that we would make a killing with it.**"[1] (I, 354).

McManus also appreciated the demand for center spot crowns and this demand was the reason for his unsuccessful efforts from 1915 to 1926. He said (I, 346):

---

[1] Emphasis ours throughout unless otherwise stated.

> "I had always felt * * * that if anybody could develop a commercial center spot crown, there would be a very large market for it, and it would probably replace the large volume of natural cork that was done by Crown Cork & Seal Company at that time."

All of these prior attempts at "spotting" crowns were failures commercially and none solved the real problem of cheap (and therefore high-speed) production with accurate centering and close adherence of the spot to the crown.

The White Rock Crown was and is a success as a crown, but it is so expensive that, with the exception of one company, it has not gone into use, although all of the patents therein have expired long ago. The primary reason is that this type of center spot cannot be used with composition cork.

The American Company's attempt to solve the problem by using a complicated cap construction was a failure.

The attempts of International and McManus were either outright or practical failures.

While petitioner's slide machine method gave results of a sort, it certainly did not solve the problem of cheap production.

These attempts of large companies and highly skilled men over a long period of years and with ample capital to develop a satisfactory method to meet an obvious call for a spot crown, show that something more than mechanical skill was required to solve the problem.

The Warth invention is clearly of the class mentioned in *Paramount* v. *American,* 294 U. S. 464, in which the Court said (at 474):

> "Where the method or device satisfies an old and recognized want, invention is to be inferred, rather than the exercise of mechanical skill. For mere skill of the art would normally have been called into action by the generally known want. (Citing) *Loom Co.* v. *Higgins,* 105 U. S. 580, 591; *Krementz* v. *Cottle Co.,* 148 U. S. 556, 560; *Hobbs* v. *Beach,* 180 U. S. 383, 392; *Carnegie*

Steel Co. v. *Cambria Iron Co.*, 185 U. S. 403, 429, 430; *Expanded Metal Co.* v. *Bradford*, 214 U. S. 366, 381."

Warth's method is described in our Main Brief, pp. 4-6, and we will not repeat that description of it.

Warth's solution was based on his perception of how to overcome the trouble which arose primarily because of the speed with which the spotting must be done if there is to be cheapness of production.

To pick up a spot by hand and glue it to a crown in a laboratory way would not be more difficult than sticking a postage stamp on a letter. But when this is attempted mechanically, an intermittent operation results in which the crown to be spotted is moved step by step through the various operative stations. If the rate is even as low as 240 per minute, that means that each crown is started, moved to the next station and stopped in its new operative position, *all in one-fourth of a second.* This motion resolves itself into a series of short, sharp, rapidly-recurring jerks.

Yet in that split-second, the spot must be cut out and accurately centered in the cork and be stuck so firmly as not to be displaced when the crown is jerked to its next station.

With Warth's teaching now as part of our knowledge, it is now relatively easy to see why the prior art failed. For instance, it is now obvious that a wet adhesive will not do because, even if the spot is originally placed accurately on the crown, the wet and still slippery adhesive will not hold it there with such certainty as to prevent displacement as the crown is jerked along while the adhesive is drying. That was the trouble McManus and International experienced with their water soluble adhesives.

Again, it is now obvious that it will not do to punch out the spot at one point and then carry it to another point for application. The spots are small and wafer-thin and, if the rate is to be even 240 per minute, the impossibility of carrying the wafer from one point to another in one-quarter of a second is clearly going to be difficult, if not impossible.

Again, it is now obvious that a thermoplastic adhesive, like gutta percha, will not be slippery, like the wet adhesive, and will be a good adhesive if properly handled. But, because it becomes so "sticky" when heated, it must be handled so as not to receive its heat before the time of application to the cork.

Again, it is now obvious that the adhesive and the spot material should be made integral or unitary, by coating the adhesive on the strip material instead of using *separate* strips of spot material and gutta percha.

This, we can now see from Warth's teachings, will be accomplished:

(*1*) *if* the gutta percha is pre-coated in the strip of spot material before the spot is punched out, for then the spot will surely have adhesive over its entire area,

(*2*) *if* the adhesively coated spot is punched out just above the cork so that the punch will carry the spot immediately into its final position,

(*3*) *if* the heat is not applied to the adhesive until the spot is applied to and pressed on the cork; that is, in the language of the Warth patent, *upon or at the instant of assembly,* and

(*4*) *if* the spot is held under pressure while cooling.

The Prior Art Relied upon By Respondent Does Not Anticipate the Warth Method.

It is also now relatively easy to go back through the prior art and pick out one part of Warth's method from one place and another from another place. By combining these fragmentary disclosures, respondent attempts to anticipate the Warth patents.

But that is wisdom after the event and the courts have frequently condemned such piecemeal building-up of a successful invention from the prior art.

> "Where the thing patented is an entirety, consisting of a separate device or of a single combination of old

elements incapable of division or separate use, the respondent cannot make good the defense in question by proving that a part of the entire invention is found in one prior patent, printed publication, or machine, and another part in another, and so on indefinitely, and from the whole or any given number expect the court to determine the issue of novelty adversely to the complainant." *Parks* v. *Booth*, 102 U. S. 96, 104.

"It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result, never attained before, it is evidence of invention. It was certainly a new and useful result to make a loom produce fifty yards a day when it never before had produced more than forty; and we think that the combination of elements by which this was effected, even if those elements were separately known before, was invention sufficient to form the basis of a patent." *Loom Co.* v. *Higgins*, 105 U. S. 580, 591, 592.

The numerous workers in the art had the same suggestions before them and yet they did not see how such suggestions could be utilized to accomplish Warth's result. Otherwise, the art would not have waited for Warth's method which is now the one universally used for making spot crowns (I, 68).

Warth's alleged admission of lack of novelty.

Respondent refers to (Br. p. 50) to a statement in an abandoned Warth application (III, 1731), filed before the patents in suit, to the effect that "apparatus for cutting and assembling spot centers is known in the art." This we do not deny. Presumably, Warth was referring to the slide machine described in our Main Br. p. 41, and illustrated in the drawing opposite that page. Obviously, that machine has nothing to do with the methods of the patents in suit, and, therefore, the statement quoted from he Warth application is not an admission that apparatus for practicing the **methods of the patents in suit** was old prior to his invention.

Prior patents on cork disc assembly machines do not anticipate the Warth patents.

Respondent then refers (Br. p. 48) to a number of patents having to do with *machines for inserting cork discs in the metal shells.* These machines show various ways of adhering the cork disc to the shell.

Respondent's entire argument based on these "cork disc assembling machine" patents is based on the false premise that Warth's claimed method is merely the simultaneous application of heat and pressure and that heat and pressure may be applied at any suitable stage in the operation.

On the contrary, not only is the claimed method a complete one consisting of a *succession and combination* of steps, but it is further limited to the stage where the heat and pressure are applied *to the spot.* The drawing opposite page 5 of our Main Brief shows that the claimed method involves the following:

> *First,* a strip coated with thermoplastic adhesive is positioned beneath a punch and over a crown.
>
> *Second,* the punching operation is utilized to deposit the spot upon the crown in central position.
>
> *Third,* the heat and pressure are utilized or made available at the instant of assembly, or, as the claim states it, "upon assembly applying simultaneously" the heat and pressure.
>
> *Fourth,* the crown is cooled under pressure (claim 3, Main Br. p. 4— footnote).

While each of the steps is vital, as petitioner's witness puts it (I, 67):

> "This last (Third, *supra*) step of applying both heat and pressure instantly with assembling serves the useful purpose of positioning the center spot centrally in the cap and enables it to stay put until further operations can be performed. This must be done instantly. Where you are running a machine at 500 per minute there is no time to wait, and one must be sure that the spot is centally positioned.

"The use of heat and pressure instantly with deposit of the spot might be considered the keynote of the entire operation. However, the three steps are like, I might say, the three steps of a tripod. Without any one of the steps the method will not function."

Defendant's Argument of Want of Invention is Unsound.

Starting with its false premise referred to above, defendant claims to find the step of simultaneous application of heat and pressure in the very old art of assembling the cork discs in the metal shells in making non-spotted crowns, and then, from that, argues Warth's center-spotting method was obvious.

But that old cork disc assembling art differs essentially in its procedure.

(1) There was no problem of *centering* as there is in the spotting art, *since the cork disc fitted tightly* within the metal shell.

(2) Nor was there any punching operation, since the discs were preformed.

(3) Nor was there any necessity for the adhesive to cover the entire area of the two surfaces joined.

(4) Finally, and most important of all, there was no necessity for having the adhesive unite the two surfaces *at the instant they were brought together,* since the cork disc was not free to shift in the closely fitting shell.

Because of the simple requirements of the old art of inserting a cork disc in a shell, it was sufficient to drop some adhesive, either separately or on a paper disc, into the shell and then insert the cork disc. It was wholly immaterial whether the pressure was applied to the cork disc before, during, or after the heating of the adhesive *since there was no problem of centering the cork disc.* Each of these variants is shown in some of the patents on which defendant relies (Br. 48).

In contrast, when applying the *center spot* by the Warth method, it is essential (*1*) that the spot be punched out of

an adhesive-coated strip (*2*) that the punching operation be directly over the cork disc so that the spot will be placed immediately on the cork by the punch, (*3*) that the heat and pressure be applied to the adhesive on the spot *"upon" or at the instant of assembly* of the spot with the cork disc and (*4*) that the spot be held under pressure while cooling.

By this, the spot is not only correctly centered but it is positively adhered at the instant it is deposited. Since the spot is adhered in the Warth method at the instant it is deposited, it does not shift from position as the caps are rapidly stepped to the following positions for subsequent operations. When it is borne in mind that the crown shells are moved to and past the punching station, step by step at the rate of over 500 per minute, it is not difficult to appreciate the constant jarring of the shells which tends to dislodge and move the deposited spot.

By his method, Warth has solved the problem of *accurately centering* the spot and *permanently adhering* it, while at the same time permitting the *high speed manufacture* which is essential if the cap is to be manufactured commercially.

The best proof that nothing in the crown assembly art teaches the Warth method is to be found in the failures of prior inventors and workers, all of whom were familiar with cork disc and metal shell assembling machinery. Consequently, the practical history of the development of the Warth method, as shown by the inventors who sought unsuccessfully to provide an efficient method of manufacture, completely answers respondent's assertions that the Warth method is obvious from the prior art.

Respondent's arguments as to what skilled workers *might* deduce from the prior art is answered by the *fact* that those who sought to make use of this art failed in their efforts. Only Warth succeeded.

Respondent's Reference to Prior Patents on Center Spot Caps.

None of the spot crown patents cited by respondent (Br. pp. 48, 49) suggests a method of manufacture similar to Warth's.

The McManus patent 1,339,066 (I, 530) states:

> "Accuracy in the positioning of the disc *f* [center spot] in the commercial production of caps * * * may be secured mechanically in a number of different ways and by means of a variety of different mechanisms and the manner of assembling * * * is immaterial to the invention * * *"

As we have already shown (p. *ante*), when McManus sought to produce this cap commercially, he failed, although he had spent much time and money in his efforts.

Respondent's black lettered quotation from the McManus patent 1,339,066 (Br. p. 49) is grossly misleading, **since the quoted reference to the application of heat and pressure has nothing whatsoever to do with applying the spot to the crown.** The quotation refers only to the assembly of the *cork disc* with the shell and this involves no similar problems as we have shown. Moreover, the statement quoted from the McManus patent that in uniting a cork disc and shell, heat and pressure may be applied "simultaneously or successively" says nothing more than what is described in the assembly machine patents discussed pages 12-14 *ante*, and shows that in this procedure it is immaterial how or when the heat and pressure be applied. Yet respondent's use of the quotation would mislead the Court to believe that the patent there refers to a method of "spot" application.

Respondent's entire discussion of this and other patents infers that the Warth method consists simply in the step of using heat and pressure, regardless of how and when heat and pressure are applied. But we have shown that the Warth method is a *combination of steps*, involving among others the step of applying simultaneously heat and pres-

sure at the instant the spot is deposited. There is certainly nothing in any of the patents which respondent cites suggesting even this step alone or that it would be useful in center spotting.

Petitioner's Discarded "Slide" Machine Does Not Anticipate the Warth Patents.

Respondent finally refers (Br. 51) to the slide machine which was discarded upon the development of the Warth method. The operation of this machine is described in our main brief (p. 41) where we have inserted a drawing showing the successive steps followed in the use of that machine as to which the District Court found (III, 1790):

> "The combination of steps defined in the Warth methods of the patents in suit are not found in the plaintiff's first or slide machine, and it does not anticipate."

We have also shown in our main brief (pp. 41, 42) that the slide machine did not employ the combination of steps claimed in the Warth patents. Respondent seizes upon **one detail** of the operation of the slide machine, namely, the heated suction plunger by which the spot is lifted from the slide and heated *before* it is deposited on a crown and, because of this feature, argues that the slide machine is a complete anticipation of the entire Warth method. If the Warth method consisted merely in the use of heat and pressure, respondent's contention would be in point. But Warth's procedure involves much more than this as we have already shown.

The contemporaneous description of the slide machine (II, 613) from which respondent partially quotes (Res. Br. p. 52) explains the *entire operation* of the slide machine and shows that the *combination* or sequence of steps followed by that machine was essentially different from the combination of steps followed by Warth as we point out in our main brief (p. 42):

In the slide machine:

First. The spot was not formed from a strip coated with thermoplastic adhesive. On the contrary, *separate,* superimposed strips of metal foil and gutta percha were fed beneath a punch and the punching operation was used to unite the two separate discs formed as the punch descended.

Second. The punching operation did not deposit the spot (discs of foil and gutta percha) upon the crown. Instead, the punch deposited the discs in a slide which upon lifting of the punch, moved the two discs beneath the suction plunger.

Third. The adhesive (gutta percha) was not softened *upon or at the instant of assembly* of the spot with the crown. Instead, the gutta percha disc with the foil was rendered tacky while being held in raised position by the suction plunger.[1]

Fourth. The spotted crown was not held under pressure while cooling. Instead, it was discharged from the machine as soon as the plunger lifted.

Therefore, it is clear that the slide machine had in common with the method developed by Warth only the fact that a single element (suction plunger used to lift from the slide and heat the spot before it was deposited) applied pressure to the spot, as well as continued heat, when the spot was deposited

If the Warth method was obvious from the slide machine, as respondent asserts, it is strange indeed that petitioner struggled for nine years with that machine notwithstanding the evident demand for center spot crowns produced efficiently. Moreover, respondent's reliance on this machine

[1] As stated in the contemporaneous description (II, 613), "While the Tin Foil Spot and Tissue are being retained by the heater 'H' [heated suction plunger] the Gutta Percha Tissue is being heated; * * *".

to anticipate the method by which it was superseded as soon as Warth disclosed his invention to petitioner, completely overlooks the fact that the Warth method provided the solution to the problem of high speed production which the industry had been seeking to solve for the previous eleven years (pp. 4-6, *ante*). Disregarding everything else the fact that the Warth method enabled petitioner to increase its production for each operating unit from the maximum of *sixty* caps per minute, obtained with the slide machine, to over *five hundred* caps per minute, is of itself a complete answer to respondent's contention that what Warth did was not an invention over the slide machine.

The Warth patents do not cover a mere function of a machine.

Respondent also asserts (Br. p. 52) that the claims of the Warth patents are "for a mere function of a machine."

It is true that the methods are best practiced with a machine, but from this there is no reason for concluding that they are not methods within the meaning of the statute. The fact that a machine is used for practicing the method does not invalidate a patent on the method as such. This Court finally settled that question in *Expanded Metal Co.* v. *Bradford,* 214 U. S. 366. See also *Buffalo Forge Co.* v. *City of Buffalo,* 205 F. 83, 87, (C. C. A. 2) in which the Court said:

> "But that the means, and the only means of applying the process, are strictly mechanical is a matter of no moment, so far as patentability is concerned."

There are numerous cases in which method claims which refer to the use of a particular tool or instrumentality for practicing the method have been sustained. For example:

Michigan Carton Co. v. *Sutherland Paper Co.* (C. C. A. 6th), 29 F. (2d) 179.

The method of a claim in this latter case involved sealing cartons "by contacting with heated plates." The defendant contended that the claim distinguishes from the prior art processes only by including a "special form or arrangement of implement or apparatus"; but the court said (at 182).

> "The claim has nothing to do with 'implement' or 'apparatus' for bringing the plates into contact with the surfaces to be glued. This particular process could be performed by hand or by different mechanisms than those disclosed by the mechine claims. The disclosure is sufficient to enable any one skilled in the art to practice the process. It thus cannot be said that the claim involves 'nothing more than the operation of a piece of mechanism, or, in other words, for the function of a machine."

CONCLUSION.

The Warth patents clearly disclose inventions over the prior art and are valid.

Respectfully,

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Plaintiff-Petitioner.

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S.
FILED
DEC 13 1937
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM 1937

No. 72

CROWN CORK & SEAL COMPANY, INC., *Plaintiff-Petitioner*,

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent*.

PETITIONER'S REPLY TO RESPONDENT'S SUPPLEMENTAL BRIEF.

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PUTNEY,
Counsel for Plaintiff-Petitioner.

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

BLANK

PAGE

IN THE

Supreme Court of the United States

OCTOBER TERM 1937

No. 72

CROWN CORK & SEAL COMPANY, INC., *Plaintiff-Petitioner*,

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent*.

PETITIONER'S REPLY TO RESPONDENT'S SUPPLEMENTAL BRIEF

We would not file this brief except for the fact that respondent in its "supplemental brief" makes arguments which have never heretofore been made anywhere in this case.

Before answering these arguments, we make the simple comment that in final analysis the record shows that the Warth divisional patent was granted by the Patent Office in accordance with a practice which has existed for over fifty years.

It is a doctrine stated repeatedly[1] by this Court that a long-followed practice by a Governmental Department based on its interpretation of a statute will not be overthrown unless the statute clearly has been misinterpreted. This Court said in *United States* v. *Alabama Great Southern Railroad Company*, 142 U. S. 615, 622:

[1] See: *Bate Refrigerating Company* v. *Sulzberger*, 157 U. S. 1, 34; *Houghton* v. *Payne*, 194 U. S. 88, 99; *United States* v. *Graham*, 110 U. S. 219, 221.

> "It is a settled doctrine of this court that, in case of ambiguity, the judicial department will lean in favor of a construction given to a statute by the department charged with the execution of such statute, and if such construction be acted upon for a number of years, will look with disfavor upon any sudden change, whereby parties who have contracted with the government upon the faith of such construction may be prejudiced".

The above cited decisions apply particularly to the contention of respondent that public use (including the patentee's) more than two years before the filing date of a divisional application creates a statutory bar. The Patent Office has always interpreted the Statute (R. S. 4886—Main Brief p. 44) to apply only to an original[1] application and in *ex parte Halsey,* 1903 C. D. 41, 42, the Commissioner said that in an oath in a divisional application the "two years public use relates to the date of the original application."

Respondent's Argument (Supp. Br. pp. 3-7) that the Claims of the Divisional Patent Have No Foundation in the Original Application Disclosure.

As we understand respondent's argument, it is that one of the steps specified in the claims of the Warth divisional patent, was never disclosed by Warth until the divisional application was filed and that therefore the divisional application was not entitled to the filing date of the application for the parent Warth patent. Specifically, the alleged undisclosed step is defined in claims 2 and 3 of the divisional patent (Supp. Br. p. 5) as

> "then placing the linings in the caps under heat and pressure" (I, 557, claims 2 and 3).

---

[1] This Patent Office Rule 46 relating to the oath as to the statutory bars requires only that "In every *original* application the applicant must state under oath that * * * the invention has not been in public use or on sale in the United States for more than two years prior to his application etc."

This step is to be *subsequent* to the initial deposition of the linings (spots) by the punch and the simultaneous application of heat and pressure "at the instant of assembly" (I, 557).

As to claim 1 of the divisional patent, the implication of respondent's argument (Supp. Br. p. 6), is that that claim calls for "a cold cutting punch" which, as we show, is not true.

First taking up respondent's argument as to claims 2 and 3, we have the astonishing situation that respondent is arguing here now for the first time that the Patent Office gave the Warth divisional application the benefit of the filing date of the Warth original application for subject-matter not found in the latter. In other words, for the first time, after all of the briefing in the two lower Courts and here, respondent now presents a defense which, if true, would have been a complete defense as to claims 2 and 3.

But the defense is unfounded. As pointed out in our reply brief (p. 37 *et seq.*), the parent Warth application contains the following statement (III, 1246):

> "In carrying out the invention according to what is now considered the best practice the coating will be softened by heat *after* the crown is assembled. This may be accomplished in any suitable manner, as by a heated *plunger* or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork."

This quotation refers to the step in the method occurring at the station *following* the punching operation, at which latter station the spot has been punched out and applied to the cork with the simultaneous application of heat and pressure; that is to the "fourth step" in claims 2 and 3 of the Warth divisional application and which respondent *now* says was not disclosed in the Warth parent application. The quotation also refers to the use of a *plunger* and not to the punch.

As was also pointed out in our reply brief (p. 38), when the attention of the Patent Office was directed to the foregoing quotation in the Warth original disclosure (III, 1455), it agreed that the statement in the Warth parent application fully supported this "fourth step" and accordingly granted Warth claims 2 and 3.

Recognizing that its argument as to the "fourth step" of claims 2 and 3 could not, in any event, apply to *claim 1* of the divisional patent, since that claim does not specify this "fourth step", respondent (Supp. Br. p. 6) advances a different argument as to that claim. Respondent's argument that claim 1 has no support in the Warth original application, is that the original Warth application did not describe a "*cold* cutting punch." The answer is that claim 1 of the Warth divisional patent (I, 557) does not specify "a cold cutting punch," and, therefore, to support this claim it is immaterial whether the original application disclosure mention a "cold cutting punch."

In short, it simply is not true that Warth included in the description and claims of his application for the divisional patent any subject-matter which was not fully disclosed in the Warth original application for his parent patent.

The Failure of the Patent Office to Declare an Interference Between the Original Warth Application and the Johnson Patent.

Respondent (Supp. Br. p. 3) repeats its assertion that the original Warth application was not entitled to an interference with the Johnson application because, (Supp. Br. p. 7) when the Examiner was about to issue the *Johnson* patent and made his interference search thereon, Warth had no claims on file conflicting with Johnson's claims. As we pointed out in our reply brief (p. 20), respondent, in its main brief, completely missed our point as stated in our main brief (pp. 8-9). In its supplemental brief, respondent has *deliberately* closed its eyes to the evident fact (which it has not denied), that when the *Warth* original application

was ready for allowance and when the Examiner pursuant to the Patent Office practice made the so-called "interference search" as to the *Warth* application before passing it to patent, he should have found the allowed claim 35 in the Johnson then-pending application and should have declared an interference as to that claim between the Johnson application and the original Warth application.

That this claim (35) should have been the basis for an interference, is shown by the fact that after the Warth patent issued, the claim was then rejected in the Johnson application as "completely met [anticipated] in the * * * patent to Warth",[1] **thus showing that the Patent Office regarded the claim as fully supported by Warth's original application disclosure** and that it should have been the basis for an interference.

Consequently, even if it were true that at the time the *Johnson* patent was granted, Warth had no then-pending claims which conflicted with the Johnson claims, this does not answer our point that Warth *did* have both conflicting disclosure and claims on file when his original patent was allowed and that Johnson should not have obtained his patent without an interference with the original Warth application.

Respondent's Argument (Supp. Br. pp. 1-3) as to Abandoment.

Respondent does not deny that it failed to plead abandonment or to give notice of this defense before trial as the statute requires; see our reply brief p. 3.

As we understand respondent's argument, it is that, having argued abandonment *after* the trial and the District Court having rejected this argument, respondent should be permitted to continue to advance the same improper defense before all other courts. Petitioner has not waived its right to object to the presentation of the defense of abandonment. It had no opportunity to make such objection at the trial,

[1] II, 725—Official action of July 30, 1931.

because no such defense had been pleaded and no evidence was offered specifically to support such a defense. Respondent's urging of this defense has been wholly by way of argument based on evidence introduced at the trial to support other defenses.

There is no merit in respondent's attempt (Supp. Br. p. 2) to distinguish our citations showing the necessity for the pleading of the defense of abandonment. It is wholly immaterial what evidence is relied upon to establish abandonment. Regardless of the nature of the evidence, the statute requires that the defense be pleaded, as our cited cases show.

Respondent's Argument (Supp. Br. p. 8) as to the Warth-Johnson Interference.

There is no merit in respondent's purported answer to our citation of *Chillis* v. *Weisberg,* 1928 C. D. 24, to show that petitioner could not have elected, in the interference, to award the claims to Warth, as respondent contends should have been done under Patent Office Rule 94. As pointed out (*ante,* p. 3), the original Warth application fully disclosed the subject-matter of the method claims of the Johnson patent which Warth obtained as a result of the Warth-Johnson interference and that is all that is necessary here. It is wholly immaterial whether the Johnson application contained other disclosures which Warth's original application did not have.

Respondent's suggestion (Supp. Br. p. 8) that the assignment of the Johnson patent was not put *in escrow* pending the outcome of the Warth-Johnson interference, and that the Patent Office had no knowledge of the existence of such assignment at the time it was determined in that interference, is completely answered by undisputed direct testimony to the contrary (I, 335) and by the District Court's undisturbed finding (III, 1800, 1801) based thereon.

Respondent's Argument (Supp. Br. pp. 8-10) as to License.

We refer the Court to our reply brief (pp. 35-37) for the answer to practically everything that respondent argues upon this matter in its supplemental brief.

Respondent's argument really proceeds as if it were being sued here on the Johnson patent. Not only is petitioner not suing on the Johnson patent, but it is not relying here on anything which it acquired from Johnson or on anything to which Johnson could, by any possibility, have been entitled.

Respondent (Supp. Br. p. 9) asserts that, when petitioner purchased the Johnson patent, it granted Johnson "an *unrestricted* license to manufacture the apparatus of that patent." The evidence contradicts this assertion. In the first place, **the license to Johnson under the Johnson patent is not in evidence.** In the second place, Johnson himself (I, 170), testifying for respondent, stated that the license under his patent was *restricted* to the *future* sale of machines to those who had been licensed under petitioner's patents, which included, of course, the patents here in suit. In the third place, the license (II, 923) given to Johnson by petitioner under the *Warth* parent patent 1,788,260 limited such license to such sale of machines by Johnson as was authorized by the license to him under the Johnson patent (see license paragraph numbered 1; II, 923) and which license is not in evidence.

Finally, the license under the Warth parent patent specifically reserved (II, 924) petitioner's right to sue for previous infringement of the Warth parent patent by Johnson[1] and by those who had previously purchased machines from him, and it is clear that the machines which respon-

[1] The letter (II, 925) from petitioner to Johnson stated that petitioner would not sue Johnson as a contributory infringer of the Warth parent patent, but would sue those who were using machines previously purchased from Johnson. Respondent claims to be a user of such machines.

dent claims to have purchased were all acquired from Johnson before this license was granted.

Respondent's attempt to distinguish the facts here from those in the *Hartford-Empire* case cited in our reply brief (p. 36) is beside the point. First, respondent says that it is claiming under the statute (R. S. 4899, quoted footnote *infra*).[1]

It will be noted, however, that the statute is limited to machines purchased "prior to the application by the inventor * * * for a patent." We have shown in our reply brief (pp. 24-31) that respondent did not purchase from Johnson, prior to the filing of his application (November 26, 1929, II, 676), any machines using the preheating invention. Yet respondent's claim for a license is limited to the divisional patent covering preheating.

Moreover, the statute limits any license which might be obtained thereunder "to the specific thing so * * * purchased." Respondent is claiming a general license, not only for machines which it claims to have purchased before the Johnson application was filed (and which we have shown did not include the divisional patent invention), but also for machines purchased from Johnson in 1933 *after* the Johnson application was filed. Obviously, the statute does not apply to these.

Respondent's purported distinction of the facts here from those in the *Hartford* case is based entirely upon respondent's imaginative statement of the facts of the *Hartford* case. Respondent asserts (Supp. Br. p. 10) that, in that case, "an attempt was made to establish a license from Miller to the use of a feeder in which Miller had no legal rights." This statement, quoted from respondent's brief,

---

[1]Sec. 4899. (U. S. C., title 35 sec. 48.) Every person who purchases of the inventor or discoverer, or, with his knowledge and consent, constructs any newly invented or discovered machine, or other patentable article, *prior to the application by the inventor* or discoverer *for a patent*, or who sells or uses one so constructed, shall have the right to use, and vend to others to be used, *the specific thing* so made or purchased, without liability therefor.

is not correct, as the quotation from the *Hartford* decision in our reply brief (p. 36) plainly shows. The machines (feeders) which the defendant, Lamb Glass, in that case claimed to have a license to use were purchased from Miller who owned patents and applications thereon, which subsequently to the purchase of the machines, were assigned to the plaintiff, Hartford-Empire. The claim of license was based upon the purchase of these feeders and the transfer to *Hartford-Empire* of the Miller patents and applications covering them. Thus, it is clear that [redacted], in the present case, Johnson is in exactly the same position as Miller in the earlier case, that petitioner is in the same position as Hartford-Empire, and that respondent is in the same position as the defendant Lamb Glass of the earlier case. The facts, including the relations of the several parties, are alike in the two cases.

Respondent's Chapter (Supp. Br. pp. 10-11) on "Discussion of the Fact Testimony".

The first part of respondent's "discussion" purports to reply to our showing that it has not proved intervening rights (Our Reply Br. pp. 24-31). We do not understand respondent's assertion that "a fair reading" of the testimony of Cohn (I, 214) shows that what Cohn was saying "was that the machine in which he afterwards combined the spot and cork in one operation was the same kind as Exh. Q". It is clear from a reading of the testimony (I, 214) as well as the preceding testimony (I, 213) that Cohn there testified about the Exh. Q machines. Previously, he had referred to the Exh. P machine (I, 213, Q. 89). Then, he was asked (Q. 91, 92) as to the construction of the Exh. Q machines and it was of *these Exh. Q machines* that he said:

> "Yes, they had in addition to the mechanism for inserting the center spot, that was the same as on the previous *machine* [Exh. P], the mechanism for inserting

> cork discs into the metal shells after the manner of the Clark-Johnson type of assembling machines that had been used in the industry prior to that time".

In other words, he was identifying the 1928-1929 Exh. Q machines as machines which "combine the spot and cork in one operation", in the language of respondent's supplemental brief, and Cohn swore that those machines were not used until 1932 (our reply br. pp. 27-28).

Respondent asserts that the interrogatories (I, 144) show that respondent "had always used the preheating method shown by the Johnson patent." Even if the answers to the interrogatories were evidence, they do not support this assertion, as a mere reading of them shows. Moreover, if they did, they would not be true, since Johnson himself admitted that the machines sold respondent in July and August, 1928 did not have preheating.

The testimony referred to by respondent (Supp. Br. p. 11) as support for the assertion just discussed will be found to relate, first, to the rejected alleged prior use of the preheating invention by respondent in 1925 and which we have discussed in our reply brief (pp. 38, 39) and, second, (I, 281) to the machine to carry out the method of the Cohn patent which respondent's own evidence shows was not used prior to 1932.

The statements made by respondent (Supp. Br. p. 11) relative to the purchase by petitioner of machines from Johnson in 1929 are wholly without merit, as we point out in our reply brief (p. 32).

Obviously, Goebel's statement that the machines were "bought" from Johnson and that petitioner was "to pay the freight" thereon does not alter the fact that such machines were built by Johnson for petitioner and not for any one whose use of them could create an *adverse* right. Obviously, a machine must be "bought", even though it

be made specially for the purchaser and paid for under ordinary commercial terms.

Respectfully,

THOMAS G. HAIGHT,
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Plaintiff-Petitioner.

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S.
FILED
JUL 2 1937
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States

October Term, 1936.

No. [redacted] 72

CROWN CORK & SEAL COMPANY, INC.,
Petitioner,

vs.

FERDINAND GUTMANN & CO.,
Respondent.

Brief for Respondent in Opposition to Petition for Writ of Certiorari.

WILLIAM E. WARLAND,
Counsel.

FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Of Counsel.

THE BALLOU PRESS NEW YORK

BLANK

PAGE

Table of Contents.

	PAGE
Grounds upon which the Writ is Opposed	2-3
State of the Art as to the Subject Matter of Two Method Patents in Controversy	4-7
The construction of the Claims of the reissue 19,117 by the Court of Appeals was correct	7-9
There is no Proof of Infringement of Reissue Patent No. 19,117	9-12
The Subject Matter of the Claims in Warth Patent No. 1,967,195 Completely and Voluntarily dedicated to the Public by Warth	12-17
A Divisional Application cannot be Obtained after Parent Case Issues. They Must be Copending	17-19
The Record shows a clear Case of Intervening Rights.	19-26
Petitioner Licensed to use the Method and Machine of Johnson Patent No. 1,852,578	27-8
There is No Conflict of Decisions	28
The Fact that Patentee Thought or was Informed his Claims Covered Both Forms of the Invention is no Excuse	29
Chapman v. Winthroath Has No Application to the Facts Disclosed by this Record	30
Invention Claimed in Both Patents in Controversy Merely for a Function and Not Patentable	31
Conclusion	31

Table of Cases Cited.

	PAGE
Altoona Theatres vs. Tri-Ergon Corp. 294 U. S. 477, p. 486	8
Miller vs. Eagle Manufacturing Co., 151 U. S. p. 186	9
Underwood v. Gerber, 149 U. S. 224	9
Powder Co. v. Powder Works, 98 U. S. 126 and 137	9
Hubbell v. U. S., 179 U. S. 77 at 83-4	9
Leggett v. Avery, 101 U. S. 256 at 259	9
Kokomo Fence Machine Co. v. Kitselman, 189 U. S. 8	9
Weber Electric Co. v. Freeman, 256 U. S. 668	9
Directoplate v. Donaldson Lith. Co., 51 F. R. (2) 199	17-31
Rosenberg et al. v. Carr Fastener Co., 51 F. R. (2) 1014 Cert. Denied 284 U. S. 652	17
Fessenden vs. Wilson et al., 48 F. R. (2d) 422 p. 424	17
Saranac Automatic Machine Co. v. Wirebounds Patents Co. et al., 65 F. R. (2d) 904 (C. C. A. 6th) p. 906	19
Saranac Automatic Machine Corp. v. Wirebounds Patents Co. et al., 282 U. S. 704 (pp. 714-715)	19
General Motors Corp. v. Rubsam Corp., 65 F. R. (2) 217 at 220 (C. C. A. 6)	19
Chapman v. Wintroath, 252 U. S. 126	30
Webster v. Splitdorf, 264 U. S. 463	4
Railway Co. v. Sayles, 97 U. S. 554, 563	25
Victor Talking Machine Co. v. Brunswick-Balke-Collender Co. et al., 8 Fed. 2d 41 (C. C. A. 3d) Affirmed by this Court Per Curiam, 273 U. S. 671	25
Planing Machine Co. v. Keith, 101 U. S. 479 at 485	26
Consolidated Fruit Jar Co. v. Wright, 94 U. S. 92	26
Yale Lock Co. v. Berkshire Bank, 135 U. S. 342 at 378-9	26
Rubenstein v. Slobotkin, 33 F. R. (2) 603 at 608	26
Irving Air Chute Co. v. Switlik Parachute & Equip. Co., 82 F. R. 2d 645 (C. C. A. 3d Cir.)	26
T. H. Symington & Son Inc. v. Symington Co., 9 Fed. Supp. 699 p. 704	26

PAGE

Insulite Co. v. Reserve Supply Co., 60 Fed. 2d 433 at 435 (C. C. S.) 26
Keystone Type Foundry vs. Fastpress Co., 272 Fed. 242 27
Dable Grain Shovel Company v. Flint, 137 U. S. 41 27
De Forest Radio Telephone Co. vs. United States, 273 U. S. 236 27
DeForest Radio Co. vs. General Electric Co., 283 U. S. 664 31
Wirebounds Patents Co. vs. Saranac Automatic Machine Co., 37 F. (2d) 830 29
Wirebounds Patents Co. et al. vs. Saranac Automatic Machine Co., 24 Fed. 2d 872 29
Wollensak v. Sargent, 151 U. S. 221 and cases cited .. 29
McClain vs. Ortmayer, 141 U. S. 419 29
Westinghouse Air Brake Co. v. Boyden, 170 U. S. 537 pp. 555-8 31
E. Van Norden Co. v. Cheney, 75 Fed. (2d) 298 (C. C. A. 1) p. 302 31
Maytag Co. vs. Brooklyn Edison Co., Inc., p. VIII No. 654, 299 U. S. (Advance Sheets) 12
United Chromium Inc. vs. General Motors Corp. XI No. 733 Advance Sheets 12
Perey Mfg. Co., Inc. et al. vs. Tulchen XI No. 746 Advance Sheets 12
In re Nathan, 279 F. R. 925 19
Keystone Driller v. General Excavator Co., 290 U. S. 240 28
Radio Condenser Co. et al. v. Coe, 75 F. R. (2) 523 .. 29
Hartford Empire Co. v. Coe, 76 F. R. (2) 426 26

BLANK

PAGE

IN THE

Supreme Court of the United States

October Term, 1936.

CROWN CORK & SEAL COMPANY, INC.,
Petitioner,

vs.

FERDINAND GUTMANN & CO.,
Respondent.

Brief for Respondent.

The petition is for a writ of certiorari to the United States Circuit Court of Appeals for the Second Circuit to review an order entered by that Court in an ordinary patent suit involving the question of validity and infringement of six United States Letters Patent. An additional patent was set up by respondent as a counterclaim which was dismissed.

The decree of the District Court for the Eastern District of New York held two of the patents which were for Bottle Seals and one of which was for Strip Material for use in making Bottle Seals, invalid, and held one Bottle Seal patent and two patents for Method of Making such Bottle Seals valid and infringed.

No appeal was taken from the decision of the District Court as to the Strip Material patent.

The Circuit Court of Appeals affirmed the decision of the District Court as to the two Seal patents held invalid, and reversed that Court as to the validity of the other Seal patent and one of the Method patents, and as to infringement of the other Method patent, holding against infringement.

The petition seeks to review only that part of the decree of the Circuit Court of Appeals which held one of the method patents invalid and the other one not infringed.

The Circuit Court of Appeals denied a petition for rehearing.

The petition is opposed on the following grounds:

1. There is no conflict between different Circuit Courts of Appeals. This is the only suit ever adjudicated under any of the six patents upon which the suit was based.

2. None of the patents in suit is of any unusual or general interest. Therefore no public interest is involved in the suit.

3. There is no new point of law involved in the decision of the Circuit Court of Appeals.

4. The decision of the Circuit Court of Appeals is not in conflict with any doctrine established by this Court.

5. There is no important question of Federal law involved in the case which has not been, but which should be, settled by this Court.

6. There is no doctrine set forth in the decision of the Circuit Court of Appeals which is probably in conflict with applicable decisions of this Court.

7. While petitioner asserts that the Circuit Court of Appeals has not correctly applied decisions of this Court to the facts of this case, though at the same time arguing that important questions of Federal law are involved which have not been, but which should be, settled by this Court, such assertion is the usual one, made by every unsuccessful litigant finding himself aggrieved because of an adverse decision

by a Court, and does not constitute, "special and important reasons" for the granting of the writ of certiorari referred to in Rule 38-5 (b) of this Court.

8. An inspection of the decisions of both the lower Courts show that the real questions involved were the usual ones of validity and infringement.

9. As to one of the patents, the doctrine of laches, equitable estoppel and intervening rights applies, but the law applied to the facts by the Circuit Court of Appeals is well settled and in strict accordance with the principles of law laid down by decisions of this Court on somewhat analogous facts. As to the other method patent, the only question is that of infringement, which is a question of fact.

10. The petition and brief in support thereof contains many inaccuracies and omissions.

11. It is only by a partial and inaccurate statement of the facts shown by the entire record that petitioner is enabled to present even a plausible argument asking for the review of this Court, and the two so-called "questions presented" on page 9 of the Petition are not warranted by the Record.

12. A review of the record bearing upon the only two patents now in controversy shows conclusively that the questions petitioner seeks to review are purely questions of fact and not of law.

Argument.

The record is voluminous. As pointed out, six patents were originally involved, four for an article and the two patents in controversy for a method of making spot crowns. Three of the article patents were held invalid by the District Court and the fourth by the Circuit Court of Appeals.

In order to bring before this Court the salient facts upon which the Court of Appeals based its decision and correctly applied the principle of law laid down in *Webster Co.* v. *Splitdorf Co.*, 264 U. S. 463, and to show that there is no basis in the Record for the two questions presented on page 9 of the petition, it is necessary to refer somewhat at length to the record.

The two method patents in controversy and the state of the art as to the subject matter thereof.

The use of crown caps for bottling beverages and the necessity for using center spots are fully set forth in the decision of the Circuit Court of Appeals (p. 2146 Rec.) by Judge Swan who wrote the majority opinion. Judge Manton dissented therefrom, without opinion (p. 2155 Rec.)

The record shows that center spots have been cut from strip material and applied to an assembled crown cap by means of an interposed heat fusible adhesive by the application of heat and pressure since 1915 (p. 482-3 Rec.).

The two method patents involved, viz., Reissue 19,117 and 1,967,195 are each for a method of cutting the center spot from a strip of material either metal foil or paper coated with a heat fusible adhesive, and securing it to the cork disc by means of heat and pressure.

As previously stated the District Court found the patent to Warth 1,899,782 for strip material coated with a heat fusible adhesive invalid over the prior art (p. 2068 Rec.) Petitioner did not appeal from that decision (p. 2146 Rec.)

In order to have a center spot cut from a strip of material coated with a heat fusible adhesive, securely affixed to the cork disc, it is necessary to soften the adhesive by heating and apply pressure to make it adhere to the cork disc.

The patent to Warth Reissue 19,117 shows a method of supplying sufficient heat and pressure by means of a heated cutting punch which cuts out the center spot and sticks it to the cork disc by the simultaneous application of heat and

pressure. The claims are so limited, by the proceedings in the Patent Office and the action of the patentee.

The Warth Patent No. 1,967,195 describes and claims a method whereby the necessary heat is obtained by preliminarily heating the cork disc and then using a cold cutting punch to cut the spot from the strip of adhesive material and then applying pressure.

The record shows that a crown cap or metal shell containing a cork disc, secured to the metal shell by means of a heat fusible adhesive subjected to heat and pressure, were old as far back as the Painter patent of 1892, #468,226, page 4, lines 11, 108-128 (p. 1746 Rec.) Center spots secured to the cork disc by means of a heat fusible adhesive by the application of heat and pressure date back to 1915. Center spots per se were even older (Pats. to Demuth, pp. 1907-9; Nielsen 1,195,392, pp. 1927-8, Rec.). The use of plungers to cut and secure the spot was old. (Pat. to McManus 1, 402,780, p. 1421; Alberti 1,401,300, p. 1449 Rec.). The use of a metal foil or strip from which the spots were cut, coated with a heat fusible adhesive is concededly old. Petitioner so conceded when it failed to appeal from the decision of the District Court holding Warth patent #1,899,782 invalid over the art.

Warth, the patentee of both patents in controversy, filed an application for patent on "Bottle Caps" Aug. 21st, 1926 (five months before the filing of the original application for the patent 1,788,260 which is the parent case upon which the reissue is based). That application (which was abandoned) bore Serial No. 130,631 and as originally filed stated (p. 2015 Rec. Vol. 3.).

> "This paper disk is then secured to the cork disk by means of a backing 16 of some elastic and adhesive tissue, e. g. gutta percha, by means of a heated plunger or the like. By so applying heat and pressure to the assembled cork and paper disks the gutta percha or like backing is rendered adhesive and the paper spot is firm-

Italics ours unless otherwise stated.

ly cemented to the cork. *In this connection, it is noted that apparatus for cutting and assembling spot centers is known in the art.*"

The patent to Alberti #1,199,026, application filed October 2, 1914, states on page 2 lines 35 to 43 (p. 1267 Rec. Vol. 2)

> "The cementing medium is applied either to the exposed face of the sealing disk or packing of cork or the like, or it may be spread over that surface of the metallic disk that is to be in contact with the packing, or it may be carried by a layer of fibrous material that is to be interposed between the two disks," * * * the entire *closure being put, if necessary, under pressure and heated, whereby the cementing medium is coagulated, holding thus the metallic disk in place.*"

The patent to McManus #1,339,066, application filed November 17, 1915 states at lines 20 to 35 of page 2 (P. 695 Rec. Vol. 2) that the center spot is secured to the cork disc ordinarily by the use of a fusible binding medium interposed between the cap and the disc " and set in a manner to unite *the parts by the application of heat and pressure simultaneously or successively.*" The McManus patent was held invalid over the art by the Circuit Court of Appeals (p. 2149 Rec.).

The application for patent #1,967,195 became involved in interference with Johnson patent, No. 1,852,578 (Interference #66,201) discussed later, and the Examiner of Interference in a decision in that interference stated, page 868 (Vol. 2, fol. 2603):

> "Attention has been called to the patents to McManus #1,402,780 and Aberti 1,401,300, showing machines for this purpose. In these machines the caps are passed intermittently in single file beneath a reciprocating punch, which cuts the metal foil disk from a strip and deposits it upon the cork pad. *The caps then pass to an immediately adjacent heated plunger which applies sufficient heat and pressure to complete the union.* It was agreed by both parties at the hearing that machines of this character were used commercially prior to 1927 and that they operated at high speed."

The petitioner, on the trial of the cause, produced evidence to show that as early as 1915 it had a machine known as the "slide machine" for affixing the center spot to the cork disc (p. 482-4). A drawing of the machine (Ex. 43) was put in evidence by petitioner (p. 789 Rec.). A letter (Ex. 44, pp. 791-2 Rec. Vol. 2) from the head of the petitioner's engineering department states in part:

> "A Crown has now come into position under the Plunger and Heater 'H' which has moved into position relative to applying the spot to the crown. This is accomplished by the action of the pump 'B', which on its return stroke blows the spot from its position in the Heater on to the Crown which is *then pressed on to the cork in the crown by the Heater Plunger.* This completes the cycle of operations necessary for applying the Tin Foil Spot to the assembled #1 Crown."

The District Court, (p. 2081 Vol. 3 Rec.) in discussing that machine said

> "The *pressure of this heated punch* caused the gutta percha to stick to the cork and also to the foil spot."

There is therefore nothing new about the method claimed by either of the method patents in controversy.

Both of these patents should have been held invalid in view of the decision of this court in the case of *Altoona Theatres* vs. *Tri-Ergon Corp.*, 294 U. S. 477, page 486.

The District Court found the reissue patent 19,117 valid and infringed. The Circuit Court of Appeals held the patent not infringed.

The construction of the claims of the reissue 19,117 by the Court of Appeals was correct.

Counsel for petitioner (p. 16 and 26 brief) alleges the Court of Appeals erroneously construed the claims as limited to the heated plunger, and states in support of his argument the

decision of this court in the case of *Altoona* vs. *American Tri-Ergon,* 294 U. S. 477, 487. The argument is wholly without merit. In the case at bar the court of appeals very properly said (p. 2152 Rec.):

> "To read the claims of the reissue patent to mean a cold punch to cut the spots and a hot plunger applied later to fasten it to the cork disc would make them invalid under the old 'slide machine.' To read them to mean a cold punch which positions the spot upon a preheated cork would be inconsistent with the fact that the preheating specification was deliberately divided out later claimed in Warth's 'preheating patent' hereafter to be discussed."

Reference has already been made on page 7 of this brief to the slide machine used by petitioner beginning 1915. In addition reference is made to the other heat and pressure patents of the prior art discussed on pages 5-6 of the brief. If there is any novelty in reissue patent 19,117 over the disclosures of the prior art patents referred to, the claims, if valid at all must be limited to the precise method shown and described.

It is elementary that when a patentee acquiesces in the rejection of a claim during the progress of an application he cannot thereafter have a construction of the allowed claim which he accepted which will cover the matter he was forced to disclaim.

That law applies here with particular force. Warth voluntarily restricted himself, in his application 159,743 to the use of a heated plunger, and cannot two and one-half years after the cancelled matter has become public, claim a construction of the allowed claim to cover the cancelled matter.

The Altoona Theatres vs. *Tri-Ergon Corp.* case, relied upon by petitioner, shows page 487 that the finding of the Court of Appeals in that case was reversed by this court upon grounds which have no application to the facts in the case at bar.

Counsel for petitioner argues on pages 7 and 16 of his petition and brief in support thereof, that the Warth reissue patent 19,117 covers both methods of heating viz; heating the plunger and also preliminarily heating the cork before the spot is cut.

If he is correct in that contention then the second patent is necessarily void. There cannot be two patents for the same invention.

> *Miller* vs. *Eagle Mfg. Co.*, 151 U. S. page 186;
> *Underwood* v. *Gerber*, 149 U. S. 224;
> *Powder Co.* v. *Powder Works*, 98 U. S. 126 and 137.

It is true that the District Court held (pp. 2081-2 Rec.) that the Warth reissue patent covered both methods. The District Court also held (p. 2102 Rec.):

> "None of the claims of the divisional patent (1,967-195) is readable upon the disclosure of the reissue etc."

It is submitted that that finding of the District Court is clearly erroneous and inconsistent with its prior holding that the reissue patent covered both methods.

The Circuit Court of Appeals very properly reversed this holding and held that the Reissue patent 19,117 was restricted to the precise method of obtaining the necessary heat by heating the cutting plunger.

> *Hubbell* v. *U. S.*, 179 U. S. 77 at 83-4;
> *Leggett* v. *Avery*, 101 U. S. 256 at 259;
> *Kokomo Fence Machine Co.* v. *Kitselman*, 189 U. S. 8;
> *Weber Electric Co.* v. *Freeman*, 256 U. S. 668.

There is no proof of infringement of Reissue Patent No. 19,117.

The petitioner produced no evidence of any kind at the trial to show that respondent infringed the claims of the

reissue patent calling for the simultaneous application of heat and pressure at the time of assembly.

The only evidence of infringement of either patent shows that the petitioner's officers and counsel called at the respondent's factory August 8, 1933 (pp. 301 and 683 Rec.) for the purpose of discussing a settlement and were shown respondent's method being used by respondent at that time, which was the method of the Johnson patent 1,852,578 as modified by the procedure called for by Cohn patent #1,921,808 which also called for preheating the cork disc and used a cold cutting punch. That Cohn patent was the subject of respondent's counterclaim. The method claims of said Johnson patent are now the method claims of #1,967,195 viz., preheating the cork and applying the center spot by a cold punch.

The only evidence as to the method used by respondent was that given by respondent's superintendent and manager, both of whom emphatically stated that the respondent had always preheated the cork disc and never had used a hot cutting punch. *It had always used a cold cutting punch only* (pp. 287 & 375-6, Rec.).

The testimony of the witnesses for respondent Benno Cohn and Chas. Rasmussen, was to the effect that, beginning in December 1924 and ending in March 1925, the respondent had made and sold to the Inecto Company upwards of 300,000 caps having metal foil center spots secured to the cork disc by means of gutta percha which is a heat fusible adhesive by the application of heat and pressure.

The testimony of these witnesses shows that the method respondent used was as follows:

In December 1924 and January 1925 it used an old Clark-Johnson assembling machine (a machine for assembling the cork disc in the metal crown without a center spot) put a center spot cutting attachment thereon and preheated the cork by means of gas jets adjacent a chute which carried the assembled crowns to the spotting attachment where the center spots were secured to the cork disc by heat and subsequent cold pressure. That testimony on its face invalidates both

of the method patents now under review because (if reissue 19117 is to be so construed as to include preheating the cork disc) respondent used this method more than two years before the filing of the application for either method patent.

The testimony of these two witnesses was substantiated by officers of the Inecto Company who not only recollected that the caps were so made, but identified invoices rendered by respondent to that company and produced correspondence showing beyond all question that respondent made and sold the caps to that company on the dates mentioned. Only 300,000 were made and then discontinued because the Inecto Company sold a hair tonic having an ingredient which it was afraid might be deleteriously affected by the gutta percha, and it decided to use a cap with a flanged metal center spot forced into the cork disc as disclosed by Patent to Nielsen 1,195,392 (p. 1921 Rec.). It was further substantiated by people who sold the gutta percha and tin foil strips to responded (pp. 211-13; 256-7 & Exs. H to O & NN to TT, pp. 1170-86 Rec.).

The District Court disregarded the testimony of Cohn and Rassmussen as to the method, stating in its opinion (pp. 2078-9) that it believed they were honestly mistaken and there was not sufficient corroboration of the method either by the production of the original machine nor of any caps alleged to have been made at that time.

The District Court, however, found as a matter of fact that the respondent did make the caps at the dates mentioned and stated that "it was known to the art" (p. 2067 Rec.).

The Circuit Court of Appeals, with this evidence before it, made no specific finding either way on the question of this prior use. It did, however, accept it to the extent that it held that the method used by defendant was that of a cold plunger and therefore did not infringe the claims of the Reissue Patent No. 19,117 which are restricted to the method of applying the heat and pressure simultaneously to the cork disc when the center spot is cut out by means of a heated plunger.

Neither party uses a heated cutting punch as called for by Reissue Patent 19,117. It has been pointed out that respond-

ent always used a cold cutting punch (p. 10 of this brief). The petitioner's own witnesses said that it did not between 1930 and 1934 use a heated cutting punch (p. 134 Rec.) and the District Court so found (p. 2081 Rec.).

There is thus a finding of fact by the Circuit Court of Appeals based on adequate evidence and upon the only construction that could be made of the claims of Re-issue patent No. 19,117. It is submitted that certiorari should not be granted to review solely that question of fact. That it is the well settled practice of this court not to review questions of fact on Certiorari is demonstrated by the case of *Maytag Company* vs. *Brooklyn Edison Co., Inc.* page VIII, No. 654 where the Court of Appeals reversed the District Court on the question of validity and the case of *United Chromium, Inc.* vs. *General Motors Corp.*, page XI, No. 733, where the Circuit Court of Appeals reversed the District Court on the question of priority of invention and *Perey Mfg. Co. Inc., et al.* v. *Tulchen,* XI No. 746, where the Circuit Court of Appeals reversed the District Court on the question of infringement. 299 U. S. (Advance sheets).

The subject matter of the claims in Warth patent 1,967,195 was completely and voluntarily dedicated to the public by Warth.

The record shows that when the Warth application for a method of applying a center spot to crown caps by heat and pressure was applied for on January 7th, 1927, Serial No. 159,743, the use of a heated plunger was disclosed (p. 1490 Rec.) It also contained the following statement:

> "It may be desirable to secure the metal foil spot in position prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown to soften the coating as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In

> either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus."

It originally had claims for a method including coating metal foil with an adhesive rendered soft by heat and applying heat and pressure by means of a heated plunger and or by preliminarily heating the cork. It also had two product claims for an adhesive, which were cancelled on a requirement for division. All the method claims were rejected in an Office letter dated January 11th, 1929 (p. 1497 Rec.) The Office letter stated that the method claims were "rejected on any of the references cited which disclose the coating of a metallic foil with an adhesive which is rendered soft by heat, applying the coated metal to cork and holding under pressure until the adhesive hardens." That letter also required a drawing if any claims were subsequently found allowable. The case was amended (p. 1498 Rec.) by cancelling claims 1, 4 and 6 and limiting one of the claims by inserting "cutting a facing spot from coated foil". The amendment stated (p. 1499 Rec.):

> "The Examiner states that any of the references discloses the use of an adhesive rendered soft by heat and applying under pressure. But applicant is not claiming anything so broad as that."

The case was then finally rejected, and an appeal taken (pp. 1500-1 Rec.) Attention is called to the Examiner's statement (pp. 1502-3 Rec.) It will be noted the Patent Office, in its rejections made no distinction between the two methods by one of which the heat was applied to the cutting plunger and the other for preliminarily heating the cork, but rejected both methods. On December 3rd, 1930, after an interview with the Examiner (p. 1508 Rec.) all the claims were cancelled. The application being almost entirely rewritten (pp. 1509 to 1518), the claims all cancelled and one specific claim inserted, limiting the method to "upon assembly applying

simultaneously to the spot, pressure and sufficient heat to render the adhesive tacky."

It will be noted that the amendment also voluntarily cancelled the matter we have quoted at page 12 brief, supra as to the pre-heating of the assembled crown. With the amendment a drawing was filed showing a heated plunger. After an amendment under rule 78 was made inserting another claim, which was the same as the one claim allowed with the exception that it was limited to a metal foil spot (pp. 1530-1 Rec.) the application was allowed and the patent was issued on January 6th, 1931, bearing number 1,788,260 (the parent of the reissue 19,117). The issued patent 1,788,260 had no disclosure of and made no reference to preliminarily heating the cork.

Obviously, when the patent issued it was open to the public and any member of the public interested in the patent could look at the Patent Office file history and see that the patentee had abandoned and dedicated to the public, both the subject matter and the claims for the method of obtaining the necessary heat by preheating the cork. There can be no clearer case of voluntary dedication to the public of this method than the action of the patentee in this instance.

Patent 1,967,195 contains the statement that the original application was filed on November 7, 1930, Serial No. 494,201, which in turn is a division of Serial 159,743, January 7, 1927, now patent 1,788,260, dated Jan. 6th, 1931.

It is true that Serial No. 494,201 filed on November 30th does contain the disclosure as to preliminary heating the cork which was cancelled from the parent application of January 7th, 1927, #159,743. The District Court held, and petitioner argues, that because an application containing a disclosure of the method in connection with an entirely different invention, but making no claims to the method per se, or any method of any kind, was in the Patent Office at the time of filing the application of April 4th, 1933, which resulted in patent 1,967,195, the patentee Warth was entitled

to the date of January 7th 1927 when he first filed an application claiming that disclosure.

There are two complete answers to that erroneous holding of the District Court and the contention of petitioner in attempting to uphold it. The first answer is that, as above pointed out, when the parent patent 1,788,260 issued and became public on Jan. 6th 1931, the file shows that the preheating method and claims therefor had been abandoned and the patentee had elected to take claims for the narrow and specific method of applying heat to the plunger.

The second answer is that the application Serial No. 494,201 was for an entirely different invention. It is not an application for a patent on a method at all. The application 494,201 (p. 1948 Rec.) states that it is for an improvement in "Bottle Cap Spot Material". It appears from the specification (p. 1950-2 Rec.) that the alleged invention consisted of coating a strip of tin foil or aluminum foil with a heat fusible adhesive. There was one claim which read in part

> "As a new article of manufacture, highly flexible laminated material in sheet or strip form for the spotting of cushion disks, etc."

The claim was rejected as obviously met by a number of prior art patents, (pp. 1955-6 Rec.) and the Office action said

> "This case appears devoid of invention and should be prepared for a final action."

The case was amended and a drawing inserted showing the method of putting the adhesive on the strip material.

The drawing also showed and the amendment stated (p. 1964 Rec.) that the heat for softening the material was to be attained by maintaining the cutting punch 20 at an elevated temperature. The drawing so far as the heating method is concerned was the same as that shown in reissue 19,117.

On pages 1968-9 Record ten advantages were enumerated for the invention, most of which were to show the great desirability of applying the adhesive by coating it on the

strip material instead of feeding a separate sheet of cap material and a separate sheet of gutta percha tissue as had previously been done. The tenth advantage claimed (p. 1969 Rec.) was

> "The heat and pressure necessary for uniting the facing to the cap may be applied substantially simultaneously with the punching and assembly operations, etc."

The case was again rejected, (p. 1972) the office letter stating that it should be prepared for final action. It will thus be seen that in application 494,201 which is relied upon by petitioner to show that the matter was still before the Patent Office, the applicant again illustrated and described *the heated plunger. He did not urge or mention the desirability of preheating the cork.*

It is further significant that the applicant in an amendment (p. 1969 Rec.) dated June 16, 1931, after patent 1,788,260 had issued on Jan. 6, 1931 for the method, stated:

> "As a further feature of the invention, the applicant proceeded to provide a method involving the use of this article. However, the article is the basis for the method. Protection having been granted for the method, it is thought that the same argument which supports the patentability of the method, applies with much greater force to the article, without which the method could not have been provided."

The claims were again rejected (p. 1972). Thereafter, amendments were made with other claims and finally the application was allowed on Feb. 1st 1933 (p. 1984 Rec.) with two claims. One of the claims was cancelled and transferred to the application for such strip material patent 1,899,782 held invalid by the District Court. The case was allowed to lapse for non-payment of fee and was renewed on Feb. 1st 1934 with other claims put in and it was again allowed on Oct. 5, 1934 (p. 2000 Rec.) but the patent was never issued and counsel for respondent on February 14th 1935, had to apply to the Commissioner to obtain a copy of the application and the re-

quest was acquiesced in by counsel for petitioner (pp. 2005-6 Rec.).

When the Johnson patent was ready for issue there was no application pending in the United States Patent Office containing claims conflicting with the method claims of the application for that patent, No. 1,852,578.

When Warth filed the application on April 4th 1933 for the patent which resulted in #1,976,195, his attorneys wrote a letter to the Patent Office stating that (p. 1686 Rec.):

> "It is to be noted that the issued patent (1,788,260 on which the reissue was founded) does not disclose the preheating of the crown or pad within the crown."

Despite that statement, petitioner now asserts in this Court, that reissue of Patent No. 1,788,260 embraces the very feature admitted not to be disclosed in that patent or reissue, and asks that the claims be construed to cover a feature not disclosed in the patent, and which was deliberately cancelled from the application therefor.

Directoplate v. *Donaldson Lith. Co.*, 51 F. R. (2) 199;

Rosenberg et al v. *Carr Fastener Co.*, 51 F. R. (2) 1014 Cert. Denied 284 U. S. 652.

A divisional application cannot be obtained after the Parent case issues. They must be co-pending.

The assertion by petitioner on pages 3 and 5 of the petition that the decision of the Circuit Court of Appeals for the 2nd Circuit, in this case, reverses the accepted practice in the Patent Office, is not warranted. That practice is clearly defined in the case of *Fessenden* vs. *Wilson et al.*, 48 F. R. (2d) 422, (Ct. Cust. & Pat. App.) where the Court said at page 424:

> "We agree with the Board's finding as follows: 'Fessenden's earlier application became a patent May 14,

> 1918, and the patent contained no disclosure of the invention claimed in Fessenden's later application. There was an interim of more than three years between the grant of the patent upon the earlier application and the filing of the later application. The later application cannot have the benefit of the date of the earlier application as a continuation thereof. The proceeding relating to the two must be in fact continuous. Sarfert v. Meyer, 1902 C. D. 30. An application cannot be considered as a continuance of a patent granted prior to the filing thereof, since after the application has eventuated into a patent there is nothing left pending before the Patent Office upon which it could act or to which the later application could attach. In re Spitteler, 31 App. D. C. 271, 134 O. G. 1301; Wainwright v. Parker, 32 Add. D. C. 431, 142 O. G. 1115, 1909 C. D. 379."

The facts in the case quoted from are exactly like those in the case at bar. Warth's original patent 1,788,260 on which the reissue was founded, as previously pointed out, issued in 1931, with no disclosure or claims for the method of 1,967,195. The fact that the disclosure was still in the Patent Office in Serial No. 494,201 in no way affects the applicability of the law laid down in the cited case. Application 494,201 was for an entirely different invention, and no method of any kind was ever claimed in that application. When the original of the reissue issued an inspection of the file wrapper showed that the disclosure and claims for the method of preheating the cork was voluntarily cancelled from the application and the public had notice thereof.

The application upon which the Warth Patent 1,967,195 was granted could not be a division of application Serial No. 494,201 or 159,743 because the subject matter of application for patent 1,967,195 was voluntarily cancelled and abandoned in 159,743, and any assertion of a right to a patent upon the cancelled subject matter was not made until the filing of the application for Patent No. 1,967,195 more than two years after the issuance of Patent No. 1,788,260 granted upon application Serial No. 159,743. While such claims might have

been asserted at any time during the pendency of application Serial No. 159,743, they could not be asserted after the issuance of Patent No. 1,788,260, even by reissue and much less so by divisional application, because of abandonment of record of the subject matter.

If Reissue 19,117 is entitled to a construction of a scope to include preheating the cork disc as called for in patent 1,967,195, to sustain patent #1,967,195 would be to extend the monopoly. *Saranac Automatic Machine Co.* vs. *Wirebounds Patents Co. et al.*, 65 F. R. (2d) 904 (C. C. A. 6th) at 906, where the court refers to the prior decision of this Court in another case, involving the same patents reported in 282 U. S. 704 (see pp. 714-15).

In order for patent 1,967,195 to be entitled to the date of Jan. 7, 1927 (the application date of the original of the reissue) the application for 1,967,195 would have to be filed before the issue of the first patent.

Gen. Motors Corporation v. *Rubsam Corporation*, 65 F. R. (2) 217 at 220 (C. C. A. 6);
In re Nathan, 279 F. R. 925.

The record shows a clear case of intervening rights.

Counsel for petitioner states in his petition and brief in support thereof (pp. 3, 17, 19) that there were no intervening rights other than the issue of the Johnson patent and the admitted use by petitioner in 1929 and calls attention to the fact that the District Court ignored respondent's use of the method patent 1,967,195 and that there is no express finding of the Court of Appeals to the contrary. Petitioner therefore argues that the doctrine of *Chapman* vs. *Wintroath* applies, because Warth, when he filed his application for 1,967,195 copied the claims of the Johnson patent within two years from the issuance thereof and thus comes within the principle of *Chapman* v. *Wintroath*.

While it is true the Ciruit Court of Appeals made no specific finding on the question of intervening rights, it is very apparent that in applying the doctrine of *Webster* vs. *Splitdorf,* it based its decision on the facts in the record and necessarily found as a fact that there were intervening rights, without specifically saying so, otherwise it would not have reversed the District Court and applied the doctrine of *Webster* vs. *Splitdorf.* Obviously the Circuit Court of Appeals always goes into the facts in a patent case de novo.

Owing to the misleading statement by Petitioner on page 9 of his petition and brief, "Even in the absence of intervening adverse rights" it is necessary to briefly refer to so much of the record as shows that respondent, from 1928 up to the time of the trial, used the method of preheating the cork as claimed in the Warth patent 1,967,195.

Respondent bought its machines for center spotting caps from Johnson, beginning as early as July 1928 and ending in the Spring of 1933. The petitioner endeavored to show in the trial court that the first machine purchased by respondent from Johnson in 1928 did not have a device for preheating the cork and the District Court found that none of the machines purchased by respondent from Johnson had a preheater (p. 2100 Rec.).

There was conflicting evidence as to whether the first two machines bought by respondent from Johnson in July and August of 1928 had or had not the preheating device. We may assume for present purposes that they did not. It is proved, however, beyond all question, that the additional machines purchased by respondent from Johnson in September 1928, December 1928, March 30, 1929 and April 30th 1929 did have a preheating device for the reason that respondent's Exhibit Q (pp. 1102-3 Rec.) shows that each one of the bills to repondent from Johnson call for a number of features among which is "a roll feed etc.". The roll feed means "a spotting" attachment (p. 350 Rec.). The bills of Johnson for the July and August machines (Exhibits P

and S, pp. 1101 and 1108 Rec.) each call for one tin foil machine etc. Subsequently and between May 5th and June 19th 1933, respondent purchased four other machines from Johnson (Exhibit R, pp. 1104-7 Rec.). The center spotting machines were purchased from Johnson by respondent for the purpose of manufacturing center spot crowns having a metallic foil spot secured by gutta percha to meet a large commercial demand which arose about that time for center spots by brewers. Respondent received inquiries, and ultimately orders from the Goetz Brewery, one of the largest breweries in the country, for the production of crown caps for beer bottles with a center spot of metal foil (pp. 268-278 Rec.).

Mr. Ketterer, manager of the Goetz Brewery, a witness for respondent identified invoices for crown caps having a metal center spot, which respondent's witnesses said were made on Johnson center spot machines having the preheating device and secured by gutta percha, running continuously from August 1928 until November 1935 aggregating approximately one million gross of caps to that one customer. (Exs. NNN to TTT pp. 1763 to 1812.) In addition to that one customer, respondent sold a great number of center spot crowns made by a method including preheating the cork disc before the center spot was applied, to other customers. In 1930 and 1931 it sold carloads of crowns made by that method to the Welch Grape Juice Co. (pp. 318-19 Rec.).

That the spotting machines made and sold by Johnson to respondent the latter part of 1928 and in 1929 and 1930 had the preheating device is conclusively shown by the cross examination of Johnson by petitioner's counsel, at pages 237-8 of the Record, from which it appears that Johnson put the preheaters on the machine he had sold to Armstrong, on October 5th 1928. He said in answer to XQ 116:

> "I took the heat out of the cutting punch altogether and installed two heaters in front of it, and also a space heater I installed before the tin foil disc was cut and inserted. *And that kept the cutting punch cold.*"

In part of his answer to XQ 113 he said:

> "And I put preheaters on it, and took out the heater in the cutting punch and heated the cork before the spot was inserted * * *."

That petitioner had actual knowledge of the use of machines for carrying out the method of preliminarily heating the cork covered by the claims of method patent 1,967,195 by respondent and others, is conclusively shown by its own act in copying the three method claims of the Johnson patent for the purpose of interference (p. 1686 R.) and the evidence adduced during the interference.

The issue of the interference was, of course, the three method claims of the Johnson patent, now the only claims of patent 1,967,195. A copy of Warth's preliminary statement does not appear in the record. A copy of the preliminary statement of Johnson is found on pages 2043-4 of the record, from which it appears that he constructed a full sized apparatus for carrying out the invention during the fall of 1927 and sixteen apparatus for carrying out the invention of the issue had been constructed.

When Warth got into interference he, of course, knew that he had to go back of Johnson's filing date of November 26th 1929 and Warth therefore alleged as reduction to practice the date of his application Serial No. 159,743, for the patent resulting in 1,788,260, the parent of reissue 19,117. As has been pointed out, the step of preheating the cork, shown in 159,743 was cancelled from that application on December 3, 1930.

At the beginning of the interference Warth made a motion to shift the burden of proof in an effort to obtain the date of filing of 159,743, viz Jan. 7th, 1927. The motion was denied by the Examiner of Interferences on the ground that the Jan. 1927 application of Warth did not contain a disclosure sufficient to support the counts (pp. 438-9 Rec.). Johnson also filed a Public Use Proceeding from which it appeared that machines for carrying out the method of his patent were

made and sold and in public use more than two years prior to April 4th 1933, (when Warth filed the application for patent 1,967,195) by several persons, among whom was the respondent, the Arrow Bottle Cap Corp. of Brooklyn and the Crown Cork & Seal Co. Inc., the petitioner herein (p. 1130 Rec.). Johnson's petition for Public Use Proceedings was corroborated by a number of affidavits found at pages 1133 to 1148 Rec.

After the decision of the Examiner of Interferences denying Warth's motion to shift the burden of proof, the Petitioner on December 12th, 1933, purchased the Johnson patent and took an assignment thereof (pp. 226, 1162 Rec.). The assignment was never recorded (p. 610 Rec.). After the purchase by petitioner of the Johnson patent the interference was still continued and a stipulated record consisting of affidavits made by Warth and two others was made up for the purpose of final hearing and appeal (p. 1890 Rec.). On that stipulated record the Examiner of Interferences reversed his prior decision and awarded priority to Warth. Counsel for Johnson filed no brief at final hearing (p. 576 Rec.). All papers filed by Johnson in the public use proceeding were withdrawn from the Patent Office by petitioner after petitioner purchased the patent from Johnson (pp. 227-9 Rec.).

Defendant's Exhibit T (1109 to 1120), shows bills running between March 1929 to July 31, 1929 for five tin foil spotting machines sold and delivered by Johnson to Petitioner. One invoice calls for "foil cutting dies for tin foil machine." Attention is called to page 1112, which shows a letter dated Feb. 27, 1929 from petitioner to Johnson stating:

> "Referring to your conversation and correspondence with our Dr. Warth, would suggest that you send us on approval the machine for adhering the gutta percha lining to the tin foil. Also the machine for cutting the tin foil and fastening the same to the cork washer on finished crowns."

The petitioner's vice president, Fusting, and its superintendent Goebel admitted the purchase of these machines

at the times mentioned (p. 683 Rec.). They said they were purchased for their Canadian plant. Nevertheless the Invoices show and both of the witnesses above mentioned admitted, that the machines were shipped from Johnson's plant in Brooklyn to petitioner's plant in Baltimore, Maryland. That the machines were there "tuned up" for shipment to the Canadian plant (p. 554 Rec.). Petitioner's own act in buying these Johnson machines inspecting them and sending them to Canada (if it did send them to Canada) shows public use by Petitioner itself, slightly more than four years before Warth filed his application for patent No. 1,967,195, on April 4, 1933. When it is considered that respondent sold caps made by the method covered by the method claims of the Johnson patent (which are now the only claims in Warth patent 1,967,195) in large quantities to various customers continuously from 1928 up to and including the time of trial, and that Johnson's public use petition shows the manufacture and sale of machines made and designed for carrying out the method of the claims under discussion, which petition is corroborated not only by the accompanying affidavits but the admitted purchase by petitioner of such machines in 1929, it is submitted that there can be no clearer case of public use and intervening rights than is shown by the record of this case. No question was raised by petitioner's witnesses as to the fact that the five machines shipped to it by Johnson to Baltimore had the means for preheating the cork. The letter to Warth dated February 27th, 1929 (p. 23, *supra*), asking that machines be sent on approval completely negatives any possibility of that question being raised. Furthermore it is negatived by Johnson's testimony on cross examination referred to on pages 21-22, *supra* to the effect that in Oct. 1928 he did away with heating the plunger and heated the cork instead.

We thus have a case where an applicant for a patent made a disclosure in his application as filed. He voluntarily, without any requirement of the Patent Office, cancels the dis-

closure and the claims covering that disclosure. Before cancellation he files another application for an article with utterly different subject matter which has the *disclosure* in the pending application but he *does not* claim it. He has absolute knowledge before cancelling the disclosure that a third party has made and sold and in fact the applicant's assignee has bought machines from that third party for carrying out the method covered by the disclosure and claims as originally filed. The applicant, more than three years after voluntarily cancelling the disclosure and claims for the matter in controversy, and after actual knowledge of the subject matter of the claims in a patent issued to the man from whom his assignee by his order had bought machines from Johnson the patentee, for the purpose of carrying out the method then files an application claiming that which he had originally disclosed and voluntarily cancelled and which for some four years had been in public use and on sale.

The record therefore shows that the case of *Webster* vs. *Splitdorf* cited by the Circuit Court of Appeals in its decision clearly applies. There could be no clearer case for its application than the case at bar.

Quite apart from the decision of *Webster* v. *Splitdorf,* this Court has many times held that in a case where a patentee has delayed asserting his rights and intervening rights have accrued, the patentee will be barred from later asserting those rights. In the case of *Railway Co.* v. *Sayles,* 97 U. S. 554, 563, this Court said:

> "Courts should regard with jealousy and disfavor any attempts to enlarge the scope of an application once filed, or of a patent once granted, the effect of which would be to enable the patentee to appropriate other inventions made prior to such alteration, or to appropriate that which has, in the mean time, gone into public use."

In the case of *Victor Talking Machine Co.* v. *Brunswick-Balke-Collender Co. et al.,* 8 Fed. 2d 41 (C. C. A. 3rd), the Court said:

> "On April 4, 1911, Browning struck from his application for the patent the invention covered by claim 1, and did not reinsert it until June, 1915. Judge Morris held that this unexplained silence for a period of more than four years constituted an abandonment by him of the invention. We think his conclusions on both issues are sound, and affirm the decree on his opinion."

That decision was affirmed by this Court. *Per Curiam,* 273 U. S. 671;

> *Planing Machine Co.* v. *Keith,* 101 U. S. 479 at 485;
> *Consolidated Fruit Jar Co.* v. *Wright,* 94 U. S. 92;
> *Yale Lock Co.* v. *Berkshire Bank,* 135 U. S. 342 at 378-9;
> *Rubenstein* v. *Slobotkin,* 33 F. R. (2) 603 at 608.

It is well settled that where an applicant delays his application in the Patent Office for a long while and then puts in claims which cover improvements that have appeared in the art and patents issued therefor in the meantime, he cannot amend or broaden his claims to cover such devices. Typical cases are *Irving Air Chute Co.* v. *Switlick Parachute & Equip. Co.,* 82 F. R. 2d 645 (C. C. A. 3rd Circuit); *T. H. Symington & Son, Inc.* v. *Symington Co.,* 9 Fed. Supp. 699 at 704; *Insulite Co.* v. *Reserve Supply Co.,* 60 Fed. 2d 433, 435 (C. C. 8), *Hartford Empire Co.* v. *Coe,* 76 F. R. (2) 426.

Such being the law, it is clear beyond question that petitioner in this case having cancelled the method of preheating the cork in his 1927 application for patent and allowed the patent to issue thereon without that disclosure, cannot come in three and one-half years thereafter, when a patent has been issued to Johnson for the matter cancelled and the subject has been in use by Johnson, the respondent in this case as well as the Petitioner and others and obtain a valid patent for the cancelled subject matter.

Petitioner is licensed to use the method and machine of Johnson Patent 1,852,578.

Under U. S. R. S. 4899 petitoner is licensed to use the machine of the Johnson Patent 1,852,578 and to carry out the method set forth in the method claims of that patent.

Respondent bought all of its machines from Johnson between August, 1928 and the spring of 1933 Some of these machines were purchased after the issuance of the Johnson patent No. 1,852,578 (pp. 1102-7 Rec., Vol. 2: Test. Johnson, pp. 222-3 Rec.). By the purchase of these machines, respondent acquired the right to their use from the patentee. The Johnson patent contained 27 claims to the machine and three claims to the method or function of the mechanism of the machine.

Prior to the filing of the application for public use proceedings, by Johnson, and in August, 1933 (pp. 301, 379), petitioner's vice-president and its counsel visited the plant of the respondent and saw a Johnson machine in operation. On December 12th, 1933, petitioner purchased the Johnson patent and took an assignment thereof (pp. 1162-3 Rec., Vol. 2) and, on the same date executed a license to Johnson which license set forth that it was on that date the owner of the Johnson patent and gave Johnson a release for all past infringements of the Johnson patent (p. 1157 Rec.).

The petitioner took title to the Johnson patent with full knowledge that the respondent was using such machines and no subsequent proceeding in the Patent Office can divest the respondent of the rights its acquired from Johnson to use the machines, **particularly when the petitioner does not contest the inventorship of Johnson of the apparatus claims of the machines.**

Keystone Type Foundry vs. *Fastpress Co.*, 272 Fed. 242;

Dable Grain Shovel Company v. *Flint*, 137 U. S. 41;

DeForest Radio Telephone Company v. *United States*, 273 U. S. 236.

The record shows that there were intervening rights and a public use of the method of patent 1,967,195. The facts constituting such intervening rights and such public use were known to petitioner long prior to the filing of the application by Warth for such patent and before the purchase by petitioner of the Johnson patent and the subsequent allowance of the method claims of that patent in the Warth application. This procedure obviously was solely for the purpose of divesting respondent of those rights acquired by the purchase from Johnson of machines for the practice of the method.

Petitioner, by thus buying the Johnson patent and having the claims allowed in patent (1,967,195) granted more than two years after the issue of the Johnson patent, has not only prolonged the life of the monopoly as to the method, but has prolonged the life of the Johnson patent which it owns.

The Johnson patent, with its apparatus and method claims, nominally would have expired in April, 1949, and if the Warth patent 1,967,195 is valid, the Johnson patent, as to the apparatus claims, while nominally expiring in 1949, will in fact be extended to July, 1951, since this apparatus cannot be used without infringing the method claims of the Warth patent 1,967,195.

The effort to conceal the fact of ownership of the Johnson patent obviously was an effort to withhold a material fact from the public.

Keystone Driller v. *General Excavator Co.*, 290 U. S. 240.

There is no conflict of decisions.

Counsel for petitioner has cited a number of authorities and argued that there is a conflict of decisions between the Circuit Courts of Appeal of different circuits. It is unnessary to discuss those cited decisions in detail. No one of them shows a state of facts as shown by this record, viz. claims and disclosure having been stricken from a pending application, the patent issued and then more than two years after its

issuance the inventor tries to get that cancelled and abandoned matter which has gone into public use, into another patent and get the date of the original.

Counsel for petitioner evidently overlooks the fact that the case of *Wirebounds Patents Co.* vs. *Saranac Automatic Machine Co.*, 37 F. (2) 830 relied on by him at pages 5, 12, 19 of his brief was reversed by this Court in 282 U. S. 704. It would seem that if any conclusion could be drawn from the action of this court, it is that the decision of the lower court in that case 24 Fed. (2) 872 is the law. That court properly applied the doctrine of *Webster Electric Co.* vs. *Splitdorf Electric Co.*, because there was a long delay in filing a divisional application and as in the case at bar there was no evidence of inadvertence, accident or mistake.

It will be noted therefore that on an analogous state of facts to those in the case at bar, this Court refused to pass on the question now attempted to be raised by petitioner. Manifestly, there is no conflict between the decisions of the Second and Sixth Circiuts.

The fact that the patentee thought or was informed his claims covered both forms of the invention is no excuse.

Counsel for petitioner cites on page 28 of his brief, two cases to the effect that reliance on an earlier application or patent is an excuse for delay in asserting claims. The two cases cited there are both interference decisions and show an entirely different state of facts than that shown in this record.

In any event, this court has held that the opinion of a patentee or his counsel, to the effect that an earlier patent covered a certain construction is no excuse for delay.

Wollensak vs. *Sargent*, 151 U. S. 221 and cases cited.

McClain vs. *Ortmayer*, 141 U. S. 419.

Radio Condenser Co. et al. v. *Coe*, 75 F. R. (2) 523.

2

The case of *Chapman* vs. *Wintroath*, 252 U. S. page 126 has no application to the facts disclosed by this record.

In *Chapman* vs. *Wintroath*, the Chapmans disclosed the invention in controversy but did not claim it. Thereafter Winthroath filed an application and obtained a patent on the subject matter of the invention. Afterwards, while Chapman's original application disclosing the subject matter was still pending, they filed a divisional application within two years from the issue of the Wintroath patent and copied Wintroath's claims. It was held they could do it because they had originally disclosed it in a pending application. There are no such facts or even remotely analogous facts in the record of this case. In the case at bar, Warth deliberately cancelled the matter, as has been previously pointed out and his patent issued without disclosing or claiming the cancelled matter, and the cancelled matter was dedicated to the public when his original patent issued in 1931, the file of which shows that matter had been cancelled.

This court in *Chapman* vs. *Wintroath* did not lay down any hard and fixed rule to the effect that if a patent issued to another party while an application was pending the applicant could, in every case, as a matter of right copy the claims of the issued patent for interference purposes. On the contrary it expressly provided that there might be cases where even if an application was filed within the two years it would not be in time depending on the circumstances of each case. This court said on page 139:

> "While not intending to intimate that there may not be abandonment which might bar an application within the two-year period allowed for filing, yet upon this discussion of the statutes and decisions etc."

As previously pointed out, the case at bar is one of deliberate abandonment. There are intervening rights of third parties. The subject matter had been cancelled from the appli-

cation (159,743) the date of which petitioner seeks to obtain and the patent had issued on that application.

Obviously *Chapman* v. *Wintroath* has no application to the case at bar.

The invention claimed in both of the patents in controversy is merely for a function and not patentable.

The claims of both Warth patents, Re-issue 19,117 and 1,967,195 are for a *method*. No complete apparatus or machine for carrying out the method is shown, described or claimed. The claims in both of these patents are for a method of securing a center spot by means of a heat fusible adhesive with a cork disk by means of heat and pressure. The claims are for nothing but the function of a machine. Obviously when using a heat fusible adhesive, heat and pressure must be used.

It is well settled by many decisions of this and other Courts that a patent for a result or function cannot be sustained.

Westinghouse Air Brake Co. v. *Boyden,* 170 U. S. 537 at pages 555-8;

E. Van Norden Co. v. *Cheney,* 75 Fed. 298 (C. C. A. 1) at page 302;

Directoplate v. *Donaldson Lith. Co.,* 51 F. R. (2d) 199;

DeForest Radio Co. v. *General Electric Co.,* 283 U. S. 664, pages 682-4.

CONCLUSION.

There is nothing in the record to warrant the exercise by this Court of its discretionary power of review.

The facts in the record do not support the questions presented by petitioner on page 9 of its brief.

The question of infringement of Re-issue patent No. 19,117 is purely one of fact.

The construction placed by the Circuit Court of Appeals upon the claims of Re-issue Patent No. 19,117 is fully supported by the file history of the application for that patent and the facts in the Record.

Patent No. 1,967,195 is invalid for the reason that the subject of the claims thereof was cancelled and abandoned to the public by Warth when he cancelled the description and claims from his application Serial No. 159,743 (the date of which he now seeks to obtain) and thereafter permitted Patent No. 1,788,260 to issue on January 6th, 1931 and permitted the public to acquire knowledge of such cancellation. In the meantime respondent and others had used the method to a large extent commercially.

The Record shows a clear case of intervening rights and the Circuit Court of Appeals properly applied the doctrine enunciated by this Court in *Webster* v. *Splitdorf* to the facts shown in this Record.

The Petition should be in all respects denied.

Dated, New York, N. Y., June 30th, 1937.

WILLIAM E. WARLAND,
Counsel.

FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Of Counsel.

BLANK

PAGE

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S.
FILED
SEP 10 1937
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States,

OCTOBER TERM, 1936.

No. 1008. 72

CROWN CORK & SEAL COMPANY, INC.,
Petitioner,

vs.

FERDINAND GUTMANN & CO.,
Respondent.

Supplemental Brief for Respondent.

WILLIAM E. WARLAND,
Counsel.

FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Of Counsel.

THE BALLOU PRESS NEW YORK

BLANK

PAGE

TABLE OF CONTENTS.

	PAGE
Petitioner's Reply Brief	1-2
Brief Statement of the Two Patents in Controversy	2-3
The Facts Set Forth in the Opinion of the Circuit Court of Appeals fully supports its Decision under the Rule laid Down in Webster v. Splitdorf	4
The co-pendency of an application containing a disclosure of the preheating method, but not claiming it, and claiming a different invention, viz., an article of manufacture only, does not entitle Warth to the date of filing of the parent case	5-6
Warth deliberately abandoned the invention, if it is invention, of the method of preheating the cork	6-8
Warth is estopped by his action in the Patent Office on the application resulting in Patent No. 1,788,260 from obtaining a patent at any time on the preheating method	8-11
The parent case having issued, Warth cannot in an application filed after its issue obtain the date of the parent case for that subsequently filed application	11-14
The record shows there are intervening rights	15-19
CONCLUSION	21

Table of Cases Cited.

	PAGE
Adamson v. Gilliland, 242 U. S. 350	17
Bloodhart v. Levernier, 64 F. (2d) 367	17
Chapman v. Wintroath, 252 U. S. 126	3
Conover v. Downs, 35 F. R. (2d) 59	12
Corbin Cabinet Lock Co. v. Eagle Lock Co., 150 U. S. 38	17
Deering v. Winona Harvester Works, 155 U. S. 286	7
Eagleton Mfg. Co. v. West-Bradley Co., 111 U. S. 490	17
Ex parte Crane, 32 Pat. Q. 80	10
Ex parte Moorhead, 173 O. G. 1079	11
Ex parte Stimson, 1916 C. D. 20	6
Insulite Co. v. Reserve Supply Co., 60 F. (2d) 433	17
In re Baker, 74 F. R. (2d) 306	10
In re Crowell, 79 F. R. (2d) 746	10
In re Ellis, 86 F. R. (2d) 412	10
In re Murray, 64 F. R. (2d) 788	11
In re Spittler and Krische, 1908 C. D. 374	11
In re Stanton, 86 F. R. (2d) 337	10
In re Weston, 390 O. G. 265	10
In re Woodsome & Swan, 1926 C. D. 176; 10 F. (2d) 1003	11
I. T. S. Rubber Co. v. Essex Rubber Co., 272 U. S. 429	6
James v. Campbell, 104 U. S. 356 at 382	6
Jones v. Freed-Eisman Radio Corp., 47 F. (2d) 174	17
Jones v. Larter, 1900 C. D. 111; 92 O. G. 383	5
Mahn v. Harwood, 112 U. S. 354	6
McClain v. Ortmayer, 141 U. S. 419	7
Miller vs. Brass Co., 104 U. S. 350	6
Model Bottling Machinery Co. v. Anheuser Busch Brewing Assn. 190 F. 573 C. C. A. 8th Cir.	13
Powers-Kennedy Co. v. Concrete Co., 282 U. S. 175	16

PAGE

Rifle Co. v. Whitney, 118 U. S. 22 7
Splitdorf Electrical Co. v. Webster Electric Co., 283 F. R. 83 7
Stromberg v. Motor Devices Co. v. Benecke & Kropf Mfg. Co., 10 F. (2d) 405 C. C. A. 7th 7
Union Typewriter v. L. C. Smith & Bros., 173 F. R. 288 at 297 6
Vapor Car Heating Co. v. Gold Car Heating and Lighting Co., 296 F. R. 188 8
Wainwright v. Parker, 1909 C. D. 379 12
Writer v. Kiwad, 63 F. R. (2d) 259 4

BLANK

PAGE

IN THE

Supreme Court of the United States,

OCTOBER TERM, 1936.

CROWN CORK & SEAL COMPANY, INC., Petitioner, vs. FERDINAND GUTMANN & CO., Respondent.	No. 1008

Supplemental Brief for Respondent.

On page two of its reply brief, petitioner has quoted testimony given by the Commissioner of Patents on June 24th, 1937 before the Senate Committee on Patents and it is stated in a footnote (p. 2 Petitioner's Reply Brief) that a printed copy of the testimony has been filed with the clerk of this Court.

It seems clear that the principal reason petitioner filed a reply brief is to get before this Court the testimony of the Commissioner referring to the case at bar. We make no comment on the Commissioner's action in discussing a case by title which is now awaiting the decision of this Court upon an application for a writ, and giving his opinion as to what would happen on the granting or refusal of the writ.

Attention is called to the fact that the petition for the writ was filed in May, 1937, the testimony was given by the Commissioner on June 24th, 1937, while respondent's brief was not filed until July 2, 1937. Obviously the Commissioner's conclusions were made *Ex Parte*.

We emphatically protest against the action of petitioner in filing a copy of that testimony with this Court, and using

it in his brief in an obvious attempt to possibly influence the decision of this case.

Apart from quoting the Commissioner, the reply brief merely presents cumulative arguments on points already covered in petitioner's main brief, but respondent considers it advisable to answer the same in order to call attention to certain inaccurate and inconsistent statements and arguments.

It is thought it may be helpful to this Court in considering this case to very briefly restate the undisputed facts supporting the decision of the Circuit Court of Appeals for the Second Circuit, which bear on the two method patents in controversy, and upon which the petition for the writ herein is based.

Details as to the patents are as follows:

PATENT No. 1,788,260, App'n. Jan. 7, 1927, Ser. 159,743 Issued Jan. 6, 1931.

The application as originally filed described and claimed a method of applying heat by means of a heated plunger and also preheating the cork. Description and claims as to preheating the cork cancelled Dec. 3, 1930. Patent as issued described and claimed a method of "upon assembly applying simultaneously to the spot pressure and sufficient heat etc."

RE-ISSUE PATENT No. 91,117 Application filed Jan. 23, 1934 Issued March 20th, 1934.

A re-issue of Pat. No. 1,788,260. Had same claims as the parent case with two additional claims Nos. 3 and 4 calling for cooling under pressure. Held valid and infringed by the District Court. Court of Appeals reversed District Court on grounds that respondent did not use the method covered by the claims, and that if said claims were construed to cover respondent's method they would be invalid because anticipated.

APPLICATION Ser. No. 494,201 Entitled "Bottle Cap Spot Material," Filed November 7, 1930.

A division of Patent 1,788,260. As filed contained a *disclosure* of the "Preheating Method," but made no *claims* therefor. All claims were for "Bottle Cap Spot Material." These were allowed February 2nd. 1933 (pp. 1981-1985 Rec.). Lapsed for non-payment of fee. Renewed and again allowed to lapse (1996-2000) and finally abandoned.

PATENT No. 1,967,195 Application filed April 4th, 1933. Issued July 17th, 1934.

Patent states on its face "Original application November 7th, 1930, Serial No. 494,201, which in turn is a division of Serial No. 159,743, January 7th, 1927, now patent No. 1,788,260 dated January 6th, 1931. Divided and this application April 4th, 1933 Serial No. 664,410."

Referred to as the "Preheating Method" patent.

On April 5th, 1932 patent No. 1,852,578 containing 27 claims for an apparatus and 3 claims for the preheating method issued to Johnson upon an application filed November 26th, 1929.

The only claims in Patent 1,967,195 are the 3 preheating *method* claims copied by Warth for interference purposes.

The District Court held Patent No. 1,967,195 valid and infringed, but the Circuit Court of Appeals held that the facts above stated invited the operation of the two year rule laid down by this Court in *Webster Co.* v. *Splitdorf Co.*, 264 U. S. 463.

Petitioner contends that because the Circuit Court of Appeals did not expressly state there were intervening rights the doctrine of this Court in *Chapman* v. *Wintroath*, 252 U. S. 126 applies because Warth filed his application for the preheating method within two years of the issuance of the Johnson patent.

It is the position of respondent that the facts of this case are so different from the facts in *Chapman* v. *Wintroath*, *supra*, that the same does not apply.

That apart from the question of intervening rights decision of the Circuit Court of Appeals is in accordance with the established practice of the Patent Office and decisions of this and other Courts.

That in any event the Circuit Court of Appeals did in fact find that rights had intervened which made it impossible for Warth to obtain a valid patent.

POINT 1.

On the facts set forth in the opinion of the Circuit Court of Appeals its decision is clearly correct under the rule laid down by this Court in *Webster* v. *Splitdorf* and in accordance with a long line of decisions of this and other Courts and the well established rules of the patent office.

In an attempt to show that Warth's action in the Patent Office did not amount to abandonment, petitioner relies upon the case of *Writer* v. *Kiwad* in its reply brief (p. 9).

The District Court cited this case in its opinion and said (pp. 2095-6):

> "The subject matter was not abandoned, as suggested by defendant, but was specifically reserved by continuous inclusion in the divisional application, and later in the second division. This has been approved and is the usual practice. Writer v. Kiwad, 63 Fed. (2d) 259."

With the utmost deference to the District Court and to petitioner, it is submitted that the facts in *Writer* v. *Kiwad* are not in any way analogous to the facts in the case at bar and the case has not the slightest application. An inspection of the cited case shows that a parent application of Kiwad was filed in 1926 and claimed the invention in issue. That pursuant to a requirement of division, Kiwad

cancelled the claims and the drawing and descriptive matter in 1927. The Writer application was filed in November, 1928 and matured into a patent in August, 1929. Kiwad did not file his divisional application until December, 1929 after his attention was called to the Writer patent. The interference was declared on March 18th, 1930.

The case was entirely and radically different from the case at bar for the reason that Kiwad's parent application had not matured into a patent before his divisional case was filed. *The claims in the Kiwad parent application were not allowed until April, 1930, four months after the filing of his divisional application* (63 F. R. (2) at p. 264).

The co-pendency of an application containing a disclosure of the preheating method, but not claiming it, and claiming a different invention, viz, an article of manufacture only, does not entitle Warth to the date of filing of the parent case.

The argument of counsel for petitioner is of course that inasmuch as Warth had the disclosure in his co-pending application 494,201, Warth could make the claims any time within two years from the date of issue of the Johnson patent. That was the holding of the District Court and petitioner relies upon the decision of this court in *Chapman* v. *Wintroath* to support his argument.

The District Court erred and counsel for petitioner errs in this respect for the reason that the co-pending application 494,201 was for a *different invention.* In the case of *Jones* v. *Larter,* 1900 C. D. 111, 92 O. G. 383, the Commissioner of Patents said at page 115:

> "The presumption of dedication to the public by disclosure in a patent may, it is true, under certain circumstances be overcome by having a concurrently pending application claiming it; but *I know of no authority* for holding that it is overcome *by an application which does not and was not intended to claim it,* merely because the claims are inserted therein long after the patent on the other case issues."*

* Italics ours unless otherwise stated.

The Commissioner in his decision cited

James v. *Campbell,* 104 U. S. 356, 382;
Miller v. *Brass Co.,* 104 U. S. 350;
Mahn v. *Harwood,* 112 U. S. 354.

That case was followed and quoted from in the case of *Union Typewriter* v. *L. C. Smith & Bros.,* 173 F. R. 288, 297, affirmed by the C. C. A. 3rd Cir. in 181 F. R. 968.

As has been pointed out, application Ser. 494,201 was an application for patent on "Bottle Cap Spot Material". The *claims* were confined to that invention. The claims, after repeated rejection, were finally allowed. Warth could not have put claims for the *method* in that application after the patent 1,788,260 issued, under the authority of *Ex parte Stimson* 1916 C. D. page 20; 226 O. G. 699. In that case the Commissioner of Patents said:

> "It appears from the remarks accompanying the amendment that when the application was prepared the process claims were deliberately omitted. The inventions *are so widely different* that it would be necessary to support the process claims by a supplemental oath.
>
> No reason is seen for permitting an applicant to nullify an election deliberately made and after the application has been prosecuted to an allowance *on one invention present claims for an entirely different invention, even for the purpose of interference.*"

Warth deliberately abandoned the invention (if it is invention) of the method of preheating the cork.

It is well settled that when an applicant is compelled by the Patent Office to accept a narrow claim, he cannot thereafter have a construction of the claim either in the same or in another application covering that which was rejected by the Office in view of the art. See the case of *I. T. S. Rubber Co.* vs. *Essex Rubber Co.,* 272 U. S. 429. If dissatisfied with the action of the Patent Office, he should appeal. He is bound by the claim accepted.

In the case of *Splitdorf Electrical Co.* v. *Webster Electrical Co.*, 283 Fed. Rep. page 83 the Court said at page 93:

> "An inventor of a patent may lose his right thereto by waiver, by public grant, by estoppel, or by laches.
>
> "By failure to apply to the government for a patent within the statutory period of two years, he loses his right as effectively as if he made specific grant thereof to the public. If in his application he seeks but a part of the claims to which he is entitled, he waives all right to those not claimed. He makes a donation to the public, and his right to the monopoly is gone forever."

That case was affirmed by this Court in 264 U. S. 463 and is relied upon by the Court of Appeals in refusing Warth the date of either the parent application of January 7th, 1927 or of the divisional application 494,201 of November 30th, 1930. Warth's prosecution of the patents here involved brings him squarely within the foregoing rule.

In the case of *Stromberg* vs. *Motor Devices Co.* v. *Benecke & Kropf Mfg. Co.*, 10 F. R. (2d) 405 (C. C. A. 2nd) an application for a divisional patent was not made until more than three years after requirement. The Court held on page 406 that in view of Sec. 4894 and 9438 R. S. an application filed more than a year after requirement for division should be treated as abandoned.

Warth by cancelling claims for and the description of the preheating method from Pat. 1,788,260 (Reissue 19,117) dedicated the part not claimed to the public. In the case of *Deering* v. *Winona Harvester Wks.*, 155 U. S. 286, the court said at page 296:

> "It is possible that Olin was entitled to a broader claim than that to which he limited himself, but if he described and claimed only a part of his invention, he is presumed to have abandoned the residue to the public. McClain v. Ortmayer, 141 U. S. 419."

In the case of *Rifle Co.* v. *Whitney*, 118 U. S. 22, this court held that there may be abandonment of an invention after application as well as before. The court held at page 24:

> "The decision of the Commissioner in favor of the applicant, upon the question whether the invention has been abandoned, is not conclusive, but may be contested and reviewed in a suit brought for the infringement of the patent."
>
> "* * * An inventor, whose application for a patent has been rejected, and who, without substantial reason or excuse, omits for many years to take any step to reinstate or renew it, must be held to have acquiesced in its rejection, and to have abandoned any intention of further prosecuting his claim."

The case of *Vapor Car Heating Co. v. Gold Car Heating and Lighting Co.*, 296 F. R. 188 (C. C. A. 2nd), is to the same effect.

Warth is estopped by his action in the Patent Office on the application resulting in Patent 1,788,260 from obtaining a patent at any time on the preheating method.

An inspection of the file history of the application for the parent patent (referred to on pages 13-14 of our main brief) shows that the main and, in fact, the only method considered by applicant was that of using a heated plunger. Contrary to the erroneous statements on page 27 of petitioner's main brief and page 12 of its reply brief, the original application as filed stated (p. 1490 Rec.):

> "In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. This may be acomplished in any suitable manner, as by a *heated plunger* or a plunger and *heated table*. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork."

The claims as filed and amended did not differentiate between heating the plunger and preheating the cork. They were broad enough to cover both methods. The Patent Office in its two actions (pp. 1497 and 1500 Rec.) did not call for division as to the two methods. Nothing was said either by the Patent Office or by applicant in his amendments about

preheating the cork or alternate methods (see subdivision 10 of Amendment (p. 1524 Rec.) which describes the method and advantages of a heated plunger). The specification in referring to the preheating method simply said (p. 1490 Rec.):

> "It may be desirable * * * This may be accomplished, for example, by preheating the assembled crowns."

The Patent Office held that neither method was patentable. After final rejection and appeal filed, applicant voluntarily cancelled the preheating description and took a narrow claim for all he could get, viz., the method of using a heated plunger. On the Examiner's consent and recommendation to the board to allow that single narrow claim, the appeal was withdrawn (p. 1529 Rec.).

On pages 10 and 11 of its reply brief, petitioner, in answer to the statement in respondent's brief to the effect that the file of the parent patent shows the preheating claims and description had both been cancelled, states:

> "But this contention overlooks the fact that before cancellation of the specific disclosure the same had been embodied in the divisional application filed in November, 1930. This is the only way an applicant can reserve matter cancelled from a pending application."

It is of course quite true that an applicant can file a divisional application before the parent patent issues, and we may assume that anyone looking at the file of an issued patent might be justified in thinking that some of the subject matter had been reserved in a divisional application. That is true, however, only as to the disclosure of the issued patent. If the file shows that certain matter has been cancelled both as to the disclosure and claims, the conclusion is inevitable that the applicant had abandoned the cancelled matter. If an applicant has cancelled both description and claims, as was done in the case at bar, and put in a co-pending application, Rule 43 of the Patent Office requires

that a cross reference be made to the pending application *ex parte Weston,* 390 O. G. 265. Warth did not do this. He could make no such reference because he had no application pending with claims to any method whatsoever. There is no cross reference in the file of Ser. 159,743 resulting in Patent 1,788,260. The file of that patent therefore clearly shows that both the disclosure and claims for preheating the cork were cancelled, abandoned and dedicated to the public.

By failing to appeal from the action of the Examiner in refusing in the parent application to allow the broad claims now sought to be sustained in the preheating patent, Warth is now estopped from contending those claims are valid. *I. T. S. Rubber Co.* v. *Essex Rubber Co.,* 272 U. S. 429. In *re Ellis,* 86 F. R. (2d) 412, the applicant made an application which was rejected. He filed appeal therefrom and subsequently brought a suit under Section 4915 which he failed to prosecute. The Patent Office and Court of Customs & Patent Appeals held he was estopped from making claims of the same scope in a subsequent application because he voluntarily abandoned the suit under 4915.

In the case of *In re Baker,* 74 F. R. (2d) 306 (Ct. of Customs & Pat. App.) it was held that the decision of the Commissioner of Patents rejecting certain claims in an earlier application was *res adjudicata* on the issue of patentability of substantially similar claims in a subsequent application. Failure to appeal constitutes abandonment and estoppel. *Ex parte Crane,* 32 Pat. Q. 80.

In re *Stanton,* 86 F. R. (2d) 337 certain claims were rejected in an application for reissue on the ground of estoppel because the claims were as broad or broader than claims which had been cancelled in order to secure the original patent.

In re *Crowell,* 79 F. R. (2d) 746 is to the same effect and was a case of an application for reissue of a divisional patent. It was held the applicant was estopped because the claims were substantially the same subject matter as applicant cancelled in order to obtain the original patent.

In re *Murray,* 64 F. R. (2d) 788 the Court of Customs & Patent Appeals held that that if the invention involved was disclosed in an original or amended application and claims incorporating such invention were withdrawn or cancelled before the patent issued, the applicant was estopped from further claiming such invention by way of reissue.

In *ex parte Moorhead,* 173, O. G. 1079 the Commissioner of Patents held:

> "Applicant is no more entitled to prosecute, after a requirement for division, claims to subject-matter which had never before been claimed though disclosed in the application and the amendment containing such claims, accompanied by a supplemental oath, than he is to prosecute claims relating to the same subject-matter as the claims which had been cancelled under the requirement for division."

In the case of In re *Woodsome & Swan,* 1926 C. D. 176; 10 F. (2d) 1003 (Ct. of App. Dist. of Col.) the application was for paper drying-rolls. Certain claims were specific claiming the steam using device as paper-drying rolls. The remaining claims were generic, calling for steam using apparatus. The Patent Office required division because of the difference in scope of the claims. The applicants took no appeal, cancelled the broad claims and the patent issued Sept. 5, 1922. Before the patent was issued and in February of 1922, applicants filed an application containing the cancelled claims and called it a divisional application. The patent was refused by the Office on the ground that to allow the second application would constitute double patenting. The action was affirmed by the Court of Appeals of the District of Columbia.

The parent case having issued Warth cannot in an application filed after its issue obtain the date of the parent case for that subsequently filed application.

In the case of *In re Spittler & Krische,* 1908 C. D. 374 a patent had issued and after its issue it was sought to obtain

its date for a divisional application on matter which was disclosed in the original patent as filed. The Court of App. Dist. Col. said at page 376:

> "But having amended that application so as to conform to the ruling of the Examiner, it was merged and the patent issued thereon. After that there was no application pending in the Office as a foundation for a division. The proceeding having been closed by the issue of the patent, there was nothing to be continued. The rule which permits a divisional application to relate back to the filing date of the original which also discloses its subject matter, as long as it remains open in the Patent Office, is a very liberal one that sometimes works hardship upon intermediate inventors, and it ought not to be extended to cases not clearly within it."

In the case of *Wainwright* v. *Parker,* 1909 C. D. 379, 142 O. G. 1116, an application as originally presented disclosed four different species. Claims sufficient in scope to cover all were originally included, but after repeated rejections the application was limited without appeal to one of the species and the drawing, specification and claims were so amended as to eliminate all reference to the device involved in the interference. The application was allowed and went to patent. Four years afterwards the appellant filed the application in interference and sought to get the date of the original application. This was denied and the Court of Appeals said:

> "His original application having eventuated into a patent, there was nothing left pending before the Patent Office upon which it could act, or to which the later application could attach."

In the case of *Conover* v. *Downs,* 35 F. R. (2nd) 59, (Ct. of Cus. & Pat. Appeals) Conover filed an application showing both an apparatus and a process. No claims were made to the process. The patent issued on Dec. 9th, 1919 claims for the process were made in an independent application Nov. 28th, 1921. The Court said at page 60:

"In view of the fact that the claims for the process were for a different invention, than that involved in the patent of Dec. 9, 1919, appellant was required by the Primary Examiner to cancel these claims. This ruling was accepted by appellant and the claims were cancelled. Accordingly appellant had no proper application for the invention pending in the Patent Office until he filed his independent application on Nov. 28th, 1921, nearly two years after his application of April 30, 1919 had matured into a patent. There was, therefore, no parent application pending in the Patent Office to which his application of Nov. 28th, 1921 could relate or attach."

In the case of *Model Bottling Machinery Co.* v. *Anheuser Busch Brewing Assn.*, 190 F. 573 C. C. A. 8th Circuit, a patent disclosed both a process and an apparatus. The patent for the apparatus issued and after its issue, an application was made and a patent obtained for the process. The Court at page 576, after quoting from the case of *Hayes-Young Tie Plate Co.* v. *St. Louis Transit Co.*, 137, F. 80, said:

"If, as stated in the foregoing case, the abandonment of an application destroys the continuity, and a subsequent application must be treated as a new and independent proceeding, how can it be said that there is any continuity between an application which did not make claim to the process, but only to the machine, and a subsequent application for the process."

"Among the numerous cases cited by appellant in support of the claim of continuity, we find none where it has been held that, when a patent has been issued to a party for all he claimed in his application, the party may *subsequently make a new application for a new patent upon omitted matters*, and that such new application was a continuation of the first or original application, etc."

It would seem clear, therefore, that in this case Warth having cancelled his disclosure and claims for the preheating method in order to obtain a patent, should not be al-

lowed to file a subsequent application with the preheating claims more than two years after the parent application issued without the disclosure or claims, and then be allowed the date of the application from which he cancelled them.

Petitioner cites several cases holding that a divisional application is nothing more than an amendment to the original application. Petitioner has not cited and cannot cite any case where an amendment has been made to a patent after its issue. The cases cited by petitioner do not support his argument that the application for the patent for preheating claims No. 1,967,195 is an amendment to No. 494,201 which was pending with the parent application and had the disclosure *but no claims for the method.* The application for Ser. 494,201, as has been pointed out, was for a *different invention.* It was for Bottle Cap Spot Material. It had been allowed with claims for the strip material, when the application for the preheating method was filed (p. 1985 Rec.). The rules of the Patent Office do not permit an applicant to prosecute one form of an invention and obtain allowance therefor and subsequently present claims for the first time for a different invention.

These and other authorities clearly hold that the decision of the Circuit Court of Appeals is not, as contended for by petitioner and the Commissioner of Patents, in conflict with the well established practice of the Patent Office. On the contrary, it is in strict accordance with the practice of the Patent Office.

Those decisions as well as the decisions of this court to which we have referred, hold:

1. That an inventor must be diligent in asserting claims for his invention;

2. That where an inventor acquiesces in rejection of broad claims, and does not appeal from the ruling of rejection, he is estopped from asserting the same claims or similar claims in an application filed after the patent granted on the application in which the claims first appeared;

3. That a divisional application must be filed before the parent case issues;

4. That the mere *disclosure* of the subject matter in an application copending with the parent application is insufficient to entitle the inventor to the date of the parent case, if the copending application is for a different invention than the parent and the invention is not *claimed* in the copending application.

POINT 2.

The record shows there are intervening rights. The Court of Appeals in its decision found there were intervening rights. This Court has the power to inspect the record to ascertain whether the decision of the District Court is supported by the record.

The Circuit Court of Appeals in discussing the two method patents (pp. 2150-54 Rec.) and their history in the Patent Office, said (p. 2154 Rec.);

> "He (Warth) made no claim for preheating until more than two years thereafter, namely, April 4, 1933. *In the meantime a patent containing claims for the preheating method had been granted to Johnson on April 5th, 1932,* etc."

Because the Court of Appeals did not use the expression "intervening rights" and state in so many words that it reversed the finding of the District Court on that point, petitioner argues that it acquiesced in the conclusions of the lower court in that regard. This argument is fallacious. The language in the opinion of the Court of Appeals last quoted indicates that it did in fact consider the issuance of the Johnson patent to have given Johnson paramount rights since Warth's disclosure of the preheating method was lying

dormant and unclaimed in the Patent Office in an application for a different invention in which no claims for any method of any kind were ever made.

The Record shows and the Court of Appeals might well have held that the Cohn Patent No. 1,921,808 (p. 768 Rec.) applied for on July 20th, 1932, issued August 8th, 1933 is an intervening right. It shows the preheating method and is hereafter referred to.

In its holding, the Circuit Court of Appeals followed a long line of decisions mentioned in its opinion on page 2154 of the record. Those cases, and decisions of this and other courts, hold **that an applicant is not entitled, by amendment, to so enlarge the scope of an original application as to enable him to appropriate the inventions of others.**

The case of *Powers-Kennedy Co.* v. *Concrete Co.*, 282 U. S. 175, in its main essentials and its facts is very similar to the case at bar. It appears on page 184 of that case that McMichael recognized the priority of Leake, and, as a result, purchased and took an assignment of Leake's patent while his own application was pending, to dispose of an interference declared by the Patent Office. Leake did not offer evidence or press his claim to priority and the McMichael patent was granted in 1915, and the Leake patent in 1917, both of them, as in the case at bar, being owned by the same company. The Court said, pages 185 and 186:

> "And, even if the mode of operation is as claimed, it is to be remembered that Leake in his application of October 7th, 1907, uses the same words to describe the operation of his nozzles as we find McMichael subsequently inserted in his specifications and claims. When this application came into interference with McMichael's, he, of course, became familiar with Leake's claims. It is significant that he then amended his claims, almost in the very words of Leake. This of itself destroys the patent. Railway Co. v. Sayles, 97 U. S. 554; General Electric Co. v. Sangamo Electric Co., 174 F. 246; Lopulco Systems Inc. v. Bonnot Co., 24 F. (2d) 510."

The rule announced by the Supreme Court applies with greater force against the petitioner here than it did in the cited case, for the reason that in the case at bar Warth, while originally disclosing and claiming the preheating step, cancelled them from his original application and allowed the patent to issue without either claims or disclosure for that method. Petitioner in the case at bar when it purchased the Johnson patent, as in the cited case, pressed its claim to priority on the Warth application filed subsequently to the issue of the Johnson patent.

The principle of the *Powers-Kennedy* case has been followed by this court in *Eagleton Mfg. Co.* v. *West-Bradley Co.*, 111 U. S. 490.

Corbin Cabinet Lock Co. v. *Eagle Lock Co.*, 150 U. S. 38 at page 43 (a case of reissue);

Also in the following cases:

Jones v. *Freed-Eismann Radio Corp.*, 47 F. (2d) 174 (C. C. A. 2nd);
Insulite Co. v. *Reserve Supply Co.*, 60 F. (2d) 433 at 435 (C. C. A. 8th);
Bloodhart v. *Levernier* 64 F. (2d) 367 at 369 (Ct. Cust. & Pat. App.).

The petitioner, on page 5 of its reply brief, cites the case of *Adamson* v. *Gilliland*, 242 U. S. 350 in support of its contention that this Court cannot look into the Record. A reading of that case shows that this Court went carefully into the Record and discussed in detail the testimony of one of the witnesses. We submit therefore that the case is clearly an authority for the proposition that this Court may look into the Record to see whether the finding of the District Court is supported by the evidence.

Respondent is not asking this Court to pass upon conflicting testimony. Respondent's contention is that the documentary evidence and undisputed oral testimony of witnesses for both sides shows that the District Court erred in

concluding there were no intervening rights, and that there is no evidence to support its finding.

The findings of the two lower courts in this case are not unanimous. There was a dissenting opinion. The Circuit Court of Appeals in reversing the finding of the District Court as to infringement of Re-issue Patent 19,117 necessarily and expressly found (contrary to the finding of the District Court) (pp. 2151-2 Rec.) that defendant uses a different method, viz., a cold cutting punch and preheats the cork.

All the evidence, documentary and oral, shows that respondent had during the entire period of its manufacture of center spot crowns used the method of preheating the cork. The stipulation offered by petitioner at the opening of the trial (p. 733 Rec.) (as its only proof of infringement) shows that the method respondent used in making the alleged infringing caps, was set forth in Johnson Patent No. 1,852,578 and the Cohn patent No. 1,921,808 (p. 768 Rec.). The Cohn patent shows that it was applied for on July 20th, 1932 (while Warth's disclosure for the preheating method was lying unclaimed in the Patent Office). The Cohn patent shows the method of preheating the cork the same as in the Johnson patent. The only difference between the Johnson and Cohn patents is that the latter places the center spots on the cork discs and the cork discs in the metal shell all in one machine, whereas the Johnson patent puts the center spot on a cap, the cork disc of which has been previously secured to the metal shell in another machine (pp. 292, 392-3 Rec.)

Petitioner's own documentary evidence (Exs. 36 and 37 pp. 781-83 Rec.) in connection with petitioner's cross examination of Johnson in connection with those exhibits shows conclusively that Johnson found the heated cutting plunger unsatisfactory and eliminated it and preheated the cork in his machines in Oct., 1928 (p. 238 Rec.).

The public use proceeding instituted by Johnson during the interference between his patent and the Warth applica-

tion (Respt.'s Ex. U, p. 1121-etc. Rec.) consists of affidavits, one of them by Johnson's attorney, who prepared the application, and by his draftsman, to the effect that machines like those shown in the Johnson patent, a copy of the drawing of which was attached to the affidavit, were made as early as January, 1929 There is no evidence put in by petitioner to contradict the facts set forth in those affidavits. They were received in evidence without objection by petitioner's counsel.

There is evidence that petitioner bought five machines from Johnson between March and July 1929. An extract of the letter from petitioner ordering these machines is quoted on page 23 of our main brief. Those machines necessarily had the method of preheating the cork. As pointed out, Johnson abandoned the heated plunger in October, 1928 and preheated the cork.

Both the District Court (p. 2081 Rec.) and the Circuit Court of Appeals (p. 2153 Rec.) found that both parties in commercial practice used the method of preheating the cork. The finding of the District Court to that effect is hopelessly inconsistent with its holding that there was no sufficient evidence to show that respondent had, as testified to by its witnesses Cohn and Rasmussen (pp. 292-3, 287 Rec.) always used a cold cutting punch and preheated the cork, either by a gas flame or electrically heated plungers. The cross-examination of respondent's witnesses by counsel for petitioner (pp. 349-50 Rec.) establishes that fact. There is no evidence to the contrary.

The references made to the record by petitioner on pages 6 and 8 of his reply brief do not support the conclusions attempted to be drawn therefrom. On page 6, petitioner refers to the testimony of Cohn and argues from the references to the record that the machines bought by Johnson in September and December, 1928 and 1929 did not have the preheating device "since they are conceded to have been like the earlier 1928 machines which did not." There is no such concession either in the record nor in respondent's brief. Peti-

tioner says on page 6 that Cohn so testified about Exhibit Q and cites the record (p. 289 Q. 93). All that Cohn said was that, in addition to the mechanism for inserting the center spot, the machines had mechanism for inserting the cork disks. There is not a word about the preheating method on that page. Cohn was also shown (Q. 87 Ex. P) a bill from Johnson dated August 28th, 1931 for a machine with a standard drum.

The uncontradicted testimony of respondent's witnesses Cohn, Rasmussen and Eisen (pp. 314-16, 390, 375 Rec.) shows that a machine was bought from Johnson on July 17th, 1928 (Ex. S, p. 1108 Rec.) which did not have a drum to hold the caps after the center spot was inserted under pressure while cooling. For that reason the center spots fell off and were returned by the Goetz Company and the caps were put through the machine a second time. Another machine was bought by petitioner in August, 1928 with a standard drum (Ex. P, p. 1101 Rec.). After a cooling drum was used, no further trouble was had and the center spots stayed on (pp. 390, 375). The evidence clearly shows that respondent had always preheated the cork when applying center spots as far back as 1924-5. Petitioner's cross-examination of Cohn and the other witnesses for respondent emphasized that fact (pp. 349-50, 383 Rec.). It is submitted that it is most improper for petitioner to make statements of fact that are not supported by the record. We further protest against the statement on page 6 (Petr.'s Reply Br.) to the effect that our main brief *admits* the first two machines did not have a preheating device. An inspection of that brief (p. 20) shows that we made no such admission. We simply said that we *assumed*, for the purpose of appeal, that they did not.

IN CONCLUSION.

In opposing the application for the writ herein, counsel for respondent have to some extent discussed the merits of the whole case, but do not thereby concede that in any view of it the case can be considered a proper one for certiorari.

It is submitted that the law as to the effect of abandonment of an invention, delays in filing an application, the effect of rights that intervene during such delays, the effects resulting from the disclosure of an invention, and the failure to claim same, and the effect of public use of an article made pursuant to a certain method have been before this Court and other Courts and settled by the decisions referred to in this and our main brief. Hence, this cause does not present any questions of law which are not well settled.

The practice in the Patent Office as to the granting of patents upon divisional applications is also well settled, and the fact that the Patent Office did not follow the well settled law and practice in granting the patents here involved is not proper ground for the grant of certiorari.

It follows that the case presents no "question of federal law which has not been, but should be settled by this Court"; there is no question of public interest involved, nor is there any conflict between decisions of circuit courts of appeals within the meaning of rule thirty-eight.

The application for the writ should be denied.

Dated, New York, N. Y., September ninth, 1937.

WILLIAM E. WARLAND,
Counsel.

FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Of Counsel.

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S.
F
DEC 2 1937
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States,

OCTOBER TERM 1937.

No. 72.

CROWN CORK & SEAL COMPANY,
Plaintiff-Petitioner,

v.

FERDINAND GUTMANN & CO.,
Defendant-Respondent.

BRIEF FOR DEFENDANT-RESPONDENT.

WILLIAM E. WARLAND,
FRANCIS H. WARLAND,
NATHANIEL L. LEEK,

Counsel for Defendant-Respondent.

THE BALLOU PRESS NEW YORK

BLANK

PAGE

INDEX.

PAGE

Proceedings in the Patent Office on the Applications for the patents in suit and Alleged Divisional applications 2-8

ARGUMENT.

POINT I.

Laches and Abandonment 8-13

Preheating Patent 1,967,195 Is Not a Proper Division Either of the Application Resulting in the Reissue Patent 19,117 Nor of the Alleged Divisional Patent for Strip Material 14-16

Mere Disclosure of an Invention in an Application For an Entirely Different Invention Than the One in Controversy Does Not Permit an Inventor to Claim the Controverted Subject Matter Long Afterwards 16-18

After a Patent Has Once Issued a Patentee Cannot Subsequently File Another Application and Call It a Division of the Issued Patent..... 18-22

The Alleged Inadvertent Issue of Johnson Patent 1,852,578 22-24

Publication 24-25

POINT II.

Intervening Rights 26-35

Petitioner knew in 1930 that Respondent was Making and Selling Center Spot Caps..... 30-32

Petitioner's Laches Began in March, 1929 When It Bought Five Machines from Johnson having the Preheating Method, as Shown in his Patent 1,852,578..33-35

Warth v. Johnson, Intf. 66,201..... 35-39

PAGE

POINT III.
The Law Applicable to Reissues and Divisional Applications 40-43

POINT IV.
There is No Proof of Infringement of Reissue 19,117 by Respondent 44-47

POINT V.
Both of the Method Patents Are Invalid over the Prior Art 47-53

CONCLUSION 53-55

APPENDIX 56-59

List of Authorities Cited.

PAGE

Webster v. Splitdorf, 264 U. S. 463.. 8, 9, 40, 41, 42, 43, 53, 54
Chapman v. Wintroath, 252 U. S. 126..... 8, 26, 40, 41, 42, 43, 53, 54
Western Electric Co. v. General Talking Pictures Corp., 91 F. R. (2d) 922 (Advance Sheets)..... 9
McClain v. Ortmayer, 141 U. S. 419..... 12, 45
Deering v. Winona Harvester Works, 155 U. S. 286..... 12
In re Ellis, 86 F. R. (2d) 412..... 12
In re Becker, 74 F. R. (2d) 306..... 13
Ex parte Crane, 32 Pat. Quar. 80..... 13
In re Stanton, 86 F. R. (2d) 337..... 13
In re Crowell, 79 F. R. (2d) 746..... 13
In re Murray, 64 F. R. (2d) 788..... 13
In re Woodsome & Swan, 1926 C. D. 176; 10 F. R. (2d) 1003..... 13
Writer v. Kiwad, 63 F. R. (2d) 259..... 16
Milburn Co. v. Davis, etc., 270 U. S. 390..... 17, 25, 54
Jones v. Larter, 1900 C. D. 111; 92 O. G. 383..... 17, 18
James v. Campbell, 104 U. S. 356..... 18, 25, 43
Miller v. Brass Co., 104 U. S. 350..... 18
Mahn v. Harwood, 112 U. S. 354..... 18, 25
Union Typewriter v. L. C. Smith & Bros., 173 F. R. 288; 181 F. R. 968..... 18
Ex parte Stimson, 1916 C. D. p. 20; 226 O. G. 699..... 18
Gladding-McBean Corp. v. N. Clark & Sons, 16 F. R. (2d) 50..... 19
In re Spitteler and Krische, 1908 C. D. 374..... 20
Wainwright v. Parker, 1909 C. D. 379..... 20
Conover v. Downs, 35 F. R. (2d) 59..... 21
Model Bottling Machinery Co. v. Anheuser Busch Brewing Assn., 190 F. 573..... 21
Hayes-Young Tie Plate Co. v. St. Louis Transit Co., 137 F. 80..... 21
Overland Co. v. Packard Co., 274 U. S. 417..... 21, 22

PAGE

Gold v. Gold, 34 App. D. C. 229, C. D. 1910, p. 269.... 24
Ludlum Steel Co. v. Terry, 37 F. R. (2d) 153 .....25, 54
Adamson v. Gilliland, 242 U. S. 350 26
Berlin Mills Co. v. Proctor & Gamble Co., 254 U. S. 156 26
Thomson Spot Welder Co. v. Ford Motor Co., 265 U. S. 445 .....26, 52
Railway Co. v. Sayles, 97 U. S. 554 32
Keystone Type Foundry v. Fastpress Co., 272 F. R. 243 36
Dable Grain Shovel Co. v. Flint Co., 137 U. S. 41 36
DeForest Radio Telephone Co. v. United States, 273 U. S. 236 36
Steinmetz v. Allen, 192 U. S. 543 40
Rowntree v. Sloan, 45 App. D. C. 207 41
Ives v. Sargent, 119 U. S. 652 41
Coon v. Wilson, 113 U. S. 268 41
Leggett v. Avery, 101 U. S. 256 43
I. T. S. Rubber Co. v. Essex, 272 U. S. 429 45
Wollensak v. Sargeant, 151 U. S. 221 45
Radio Condenser Co. v. Coe, 75 F. R. (2d) 523 45
Stelos v. Hosiery Motor-Mend Corp. et al., 295 U. S. 237 47
Altoona Publix Theatres Inc. v. American Tri-Ergon Corp., 294 U. S. 477 52
Powers Kennedy Contracting Corp. v. Concrete Mixing and Conveying Co., 282 U. S. 175 52
Westinghouse v. Boyden Power Brake Co., 170 U. S. 537 at pages 555-8 53
DeForest Radio Co. v. General Electric Co., 283 U. S. 664, pages 682-4 53
E. Van Norden Co. v. Cheney, 75 Fed. 298 (C. C. A. 1) at page 302 53
Directoplate v. Donaldson Lith. Co., 51 F. R. (2d) 199.. 53

IN THE

Supreme Court of the United States.

OCTOBER TERM, 1937.

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Petitioner, vs. FERDINAND GUTMANN & CO., Defendant-Respondent.	No. 72

BRIEF FOR DEFENDANT-RESPONDENT.

Petitioner filed an application for a writ of certiorari to review a decision of the Court of Appeals, Second Circuit, in regard to certain patents, alleging conflict of decision between different Circuit Courts of Appeal, which application was granted by this Court on October 11th, 1937. The decision of the Circuit Court of Appeals shows that originally the suit was brought on six patents, four of which for articles were held invalid by the Courts below. The only patents, therefore, involved in this appeal are the two method patents to Warth, viz., reissue patent No. 19,117, held not infringed by the Circuit Court of Appeals, the parent application of that patent, No. 1,788,260, and its two alleged divisions, one of which is Patent No. 1,967,195 held invalid by that Court.

While petitioner's brief states the main facts in the case, it does not fully set forth all the facts which we believe support the findings of laches and abandonment made by the Circuit Court of Appeals.

It is thought that a detailed statement of the proceedings in the Patent Office relating to the patents involved is necessary and will be helpful, and such a statement is accordingly set out under each patent and each alleged divisional application.

The Patent Office proceedings on the application Ser. No. 159,743 for Patent 1,788,260 (the original of reissue 19,117).

The application which resulted in Patent 1,788,260, (original of the re-issue), was filed on January 7th, 1927. It stated that the invention was for a method of producing closures of the type in which a sealing disc has a metal foil facing (pp. 1244-5, Rec.). The specification as filed stated, (p. 1246, Rec.):

> "In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or by a plunger and heated table."

It also contained the following statement:

> "It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating as soon as the metal foil spot is deposited."

As filed, it contained six method claims and three article claims for an *adhesive*. The method claims are found at pages 1247/8 of the record.

The first Office action, (p. 1250, Rec.) required division between the method claims and the claims for the adhesive. On March 14th, 1928, (p. 1251, Rec.) the claims to the adhesive were cancelled, with the statement "the subject matter thereof being reserved for divisional application."

On January 11th, 1929 (p. 1253, Rec.) the method claims were rejected by the Patent Office, the Examiner stating:

> "Claims 1 to 6 are rejected on any of the references cited which disclose the coating of a metallic foil with an adhesive which is rendered soft by heat, applying the

coated metal to cork and holding under pressure until the adhesive hardens."

The Office letter also stated that a drawing was required, but need not be furnished until some allowable matter was found in the application.

An amendment was filed on June 26th, 1929 cancelling claims 1, 4 and 6; amending claim 5 by inserting "cutting a facing spot from the coated foil"; and inserting—metal foil spot—in lieu of "coated metal foil."

The remarks accompanying the amendment emphasized the advantage of the thermoplastically coated strip.

On February 4th, 1930 the application was finally rejected (p. 1256, Rec.). On July 18th, 1930, a notice of appeal to the Board of Appeals was filed by applicant (p. 1257, Rec.).

Applicant's attorneys, after an interview with the Examiner and on November 25th, 1930, filed a request with the Board of Appeals for the dismissal of the appeal on the ground that the Examiner had allowed one claim. The original method claims were all cancelled by an amendment filed December 3/30 (pp. 1265-1274) and one narrow claim, found at page 1275 of the record was inserted which is now claim 1 of the patent and also claim 1 of re-issue 19,117 involved in this suit. The decision of the Board approving dismissal of the appeal on the ground that the Examiner had found a single claim allowable is found at page 1264 of the record (See also p. 1285). That claim was filed December 3rd, 1930.

That amendment greatly enlarged the specification and it deliberately cancelled, without any requirement by the Examiner, the matter we have quoted on page 2 of the brief, *supra*, viz:

> "It may be desirable to secure the metal foil * * * by preheating the assembled crown, etc."

A drawing (that shown in the issued patent) was filed with the amendment showing the heated plunger and heated table only.

Subsequently on December 11th an amendment was made inserting an additional claim 2 which is the same as claim 1 with the exception that it was limited to the use of metal foil spot material. The amendment accompanying it contained the following (p. 1287 Rec.):

> "The foregoing claim contains all of the limitations of the claim allowed, but is somewhat more specific etc."

The case was allowed on December 11th, 1930 and the patent issued on January 6th, 1931 without any reference to the preheating of the cork which had been cancelled on December 3rd, and with two claims only, viz., 1 and 2.

File Wrapper History of Re-Issue Patent. 19,117.

The application for re-issue of original patent 1,788,260 (just discussed) was filed on January 23rd, 1934.

The reasons given in the petition for re-issue were that there was an error in the specification to the effect that the drying time of the strip was thirty minutes when it should have been three minutes and further that the step of cooling under pressure had been omitted (p. 1159 Rec.)

There was no allegation that original claims 1 and 2 were in any way inaccurrate. There was no allegation that they did not protect the invention.

Two more claims 3 and 4 were added, each of which were the same as original claims 1 and 2 with the adddition of the cooling step under pressure. The re-issue was granted March 20th, 1934 (p. 547 Rec.)

The claims in suit in Re-issue 19,117 are claim 1, which is the same as claim 1 of Patent No. 1,788,260 and claim 3, which is the same with the additional feature of cooling under pressure.

Italics ours throughout unless otherwise stated.

Proceedings in the Patent Office in Warth Application 494,201 filed November 7th, 1930.

This application is referred to on the face of the preheating patent 1,967,195 and purports to be a division of Serial 159,743, filed January 7th, 1927, which resulted in Patent No. 1,788,260 dated January 6th, 1931 (the original of the reissue). Serial 494,201 disclosed the preheating step (p. 1674, Rec.) quoted on page 2 of the brief *supra,* (which was voluntarily cancelled from 159,743 on December 3rd, 1930), *but did not claim it.*

The invention in Serial No. 494,201 is an entirely different invention from either patent 1,788,260 or 1,967,195. Both of those patents are for a method and the claims in both patents are method claims.

Serial 494,201, however, is for an article of manufacture, viz., "Bottle Cap Spot Material" (p. 1675, Rec.). As filed, it had a single claim reading in part as follows:

> "As a new article of manufacture, laminated material in sheet or strip form for the spotting of cushion discs of caps and comprising a layer of water-proof adhesive which is hard at room temperature, etc."

The first Office action dated April 27th, 1931 (p. 1677, Rec.) rejected the claim as obviously fully met by certain patents and stated:

> "This case appears devoid of invention and should be prepared for a final action."

The case was amended on June 16th, 1931 by enlarging the specification and inserting a drawing showing the method of coating the strip. Figs. 3 and 4 of the drawing show a heated plunger and the specification stated (p. 1686, Rec.) that "the punch 20 may be maintained at elevated temperatures, as by means of a burner 23, etc." That is the same drawing and description of the heated plunger as appears in Patent 1,788,260 and in the re-issue, and omitted any showing relating to preheating.

The Patent Office, on December 17th, 1931 (p. 1694, Rec.) again rejected the application on further references and said "This case should be prepared for final action."

The specification was further amended and arguments made for patentability and action was suspended in view of an interference on another application. On January 31st, 1933 another amendment to the specification was put in with two claims for strip material. Those claims were finally allowed on February 2nd, 1933 (p. 1707, Rec.). On the same date the first of the two allowed claims was cancelled for the reason that it was transferred to applicant's co-pending case Serial No. 414,614 (p. 1708, Rec.). Serial 414,614 resulted in Patent 1,899,782 for strip material. That patent was held invalid by the District Court (p. 1781, Rec.) and no appeal taken therefrom (Erroneously called 1,899,762, p. 1830, Rec.). *Serial 494,201 never at any time claimed any method of any kind.*

Application 494,201 was allowed to lapse for non-payment of the final fee and subsequently renewed (p. 1715, Rec.) Other claims were put in, all for strip material. The case was again allowed to lapse for non-payment of the final fee. It was ultimately abandoned and no patent ever issued on it (p. 1728, Rec.).

Proceedings in the Patent Office Re Patent No. 1,967,195 (the "preheating method" patent) and the interference in which it was involved.

The application for this patent was filed on April 4th, 1933. It was accompanied with a letter (p. 1442, Rec.) from applicant's attorney requesting an interference with the Johnson Patent No. 1,852,578 granted April 5th, 1932, and said, with reference to the accompanying application,

> "Attention is called to the fact that claims 1, 2 and 3 are respectively claims 28, 29 and 30 of the patent to Johnson No. 1,852,578 granted April 5th, 1932."

The letter also stated (referring to issued patent 1,788,260):

> "It is to be noted that the issued patent does not disclose the preheating of the crown or pad within the crown. Furthermore, it is to be noted that the said patent was cited by the Examiner against a broader claim (35) presented by Johnson and the said claim was cancelled. However, claims 28, 29 and 30 were allowed over the disclosure of the Warth patent No. 1,788,260."

The three *method* claims of the Johnson patent only were copied by Warth. No attempt was made to copy the twenty-seven apparatus claims of the Johnson patent.

The application as filed also contained a fourth claim which had an apparatus limitation. That claim was cancelled by the requirement of the Examiner (p. 1445, Rec.) because it read upon the patent to Alberti 1,401,300 (p. 1205, Rec.) and the interference was declared.

It appears from the decision of the Examiner of Interferences, (Pet.'s Ex. 85, p. 660, Rec.) that after the declaration of the interference Warth made a motion to shift the burden of proof in order to obtain the filing date of January 7th, 1927 of application 159,743 (Pat. 1,788,260) (p. 332, Rec.). It was denied upon the ground that the disclosure of 159,743 would not support the counts in issue (p. 332, Rec.). The first decision of the Examiner of Interferences is not in evidence, but is dated October 2nd, 1933 (p. 333, Rec.). After that adverse decision, petitioner purchased the Johnson patent and took an assignment from Johnson dated December 12th, 1933 (pp. 333 and 925-6, Rec.).

Subsequently to the purchase from Johnson by petitioner of the Johnson patent on December 12th, 1933 and on March 16th, 1934 attorneys for Warth and Johnson made a stipulation to the effect that the record at final hearing and on appeal should consist of three affidavits. That stipulated record is found at page 1615, Record. At final hearing on the stipulated record (pp. 660 and 664, Rec.) the Examiner of Interferences reversed his prior holding and awarded priority to Warth.

The assignment from Johnson to Petitioner was never recorded (p. 465, Rec.).

Further facts relating to this interference (*Warth* v. *Johnson* No. 66201) are set forth on page 36 *et seq.* of this brief *infra.*

After the interference was decided in favor of Warth and on May 15th, 1934, the Patent Office, in a letter to Warth's attorneys (p. 1450, Rec.) said:

> "The step of heating the pads and the caps called for in claims 1, 2 and 3 should be suitably illustrated in the drawings."

On June 19th, 1934 (p. 1451, Rec.) a drawing was filed containing Figs. 7 and 8 which show means of applying heat to the sealing pads for preheating.

The amendment of June 22nd, 1934 (pp. 1462-3, Rec.) under the provisions of Rule 78, amended the specification by inserting further matter as to preheating the cushion disc or pad in the metal shell.

ARGUMENT.

POINT I.

Laches and Abandonment.

Petitioner's position in regard to the decisions of this Court in the cases of *Webster* vs. *Splitdorf* and *Chapman* vs. *Wintroath* as they relate to the above points are set forth in the Specification of Errors appearing on page 13 of the brief for Petitioner and the "Argument" that follows.

It is respondent's position that any conflict in the interpretation of the rule in regard to divisional applications laid down by this Court in *Webster* vs. *Splitdorf, supra,* is more apparent than real, and is due to the fact that said rule is sufficiently flexible to make it applicable to widely differing factual situations.

In any event, we consider the question of conflict moot in the case at bar for the reason that, as we read the opinion of the Court of Appeals, *Webster* vs. *Splitdorf, supra,* was not cited in support of any arbitrarily fixed time limitation which might be considered to apply to the filing of the alleged divisional applications herein. The resemblance between the *Splitdorf* case and the instant case lies in the fact that in each the inventor deliberately failed to assert a claim while having ample time and opportunity to do so, and only filed his divisional application after another party had obtained a patent for the invention. In each case the action of the inventor was due to "an exigent afterthought, rather than a logical development of the original application". *Webster* vs. *Splitdorf, supra,* at page 264 U. S. pages 463 at 466.

In other words the Court of Appeals based its decision squarely on the ground that the *facts* conclusively established that Warth had intentionally abandoned his invention. This is apparent not only from a careful reading of the opinion below, but the same Court in the case of *Western Electric* vs. *General Talking Pictures Corp.,* 91 Fed. (2d) 922, (Adv. sheets), referring to this case, so stated (p. 927),

> "In the Crown Cork & Seal Co. case, supra, an adverse patent for the same invention had issued to a third party before the divisional application for the patent in suit was applied for. There also the patentee had not only deliberately cancelled the disclosure of the invention from the specification of his original application, but had also cancelled the claims which were sufficiently broad to cover the invention. The patentee had really abandoned the invention, and we said, 'might never have considered the subject worth claiming as an invention' had a patent for the invention not issued to another * * *."
>
> "We also pointed out a distinction to be made between this case and the Crown Cork & Seal Co. case by saying 'But, in the case at bar, for a period of more than two years Warth apparently did not wish to claim the preheating method, having deliberately cancelled the preheating specification from his original application and shaped his claims so as to exclude it and his patent having been granted' January 6, 1935."

(1935 is a printer's error as the Record in this case, and in the original decision of the Court of Appeals, shows the correct date to be January 6th, 1931.)

We submit that Warth's conduct of the proceedings in the Patent Office on the application for Patent. No. 1,788,260 (the original of the re-issue 19,117) set forth fully (pp. 2/4 supra), on the re-issue itself, and the so-called divisional application 494,201 (pp. 5/6 supra) shows a deliberate abandonment on the part of Warth of any intention to assert his right to claims for the preheating step, and made it impossible for him to obtain such claims in any subsequent patent.

Warth's failure, voluntarily, to argue the appeal which he had taken from the Examiners final rejection on the art, pages 2/4 *supra,* in the application for patent 1,788,260 and assert his right, by prosecution of the appeal to attempt to obtain claims for preheating and in place thereof cancelling the claims and disclosure, and permitting the patent to issue without them, not only estops him from making those claims as a matter of law, but indicates an INTENT to abandon them. We temporarily defer discussion of the alleged divisional applications.

There are other indications of this intent. While conducting the application for patent 1,788,260, Warth was more interested in the *Strip Material* than in the *method of applying the heat.* Warth filed an amendment June 28, 1929, page 1255. Record, stating:

> "The Examiner states that any of the references discloses the use of an adhesive rendered soft by heat and applying under pressure. But applicant is not claiming anything so broad as that. *None of the references discloses coating foil with a substance of the characteristics mentioned, drying the coating to render it non-tacky, cutting a spot from the coated foil and assembling by heat and pressure.*"[1]

---

[1] Later, in the allowed claim, Warth further restricted his right to a particular manner of applying heat and pressure, to wit, "applying *simultaneously* to the spot pressure and sufficient heat etc." thus deliberately disclaiming all other ways of applying the spot to the cork.

The arguments and the lengthy amendment made on Dec. 3, 1930, when the description and broad claims covering preheating were cancelled all stressed the undesirable method previously used of cutting the center spots from two separate sheets of gutta percha and foil material and the great advantage of using the thermoplastically coated strip. It was on the theory that the invention consisted in the method of using a thermoplastically coated strip of cap material instead of separate strips of gutta percha and foil or paper that the Patent Office was induced to allow the application. This appears also from the "remarks" in said amendment filed December 3rd, 1930 (pp. 1265-1283, Rec.), especially the matter on page 1278 in regard to the "primary" and "secondary" concepts of the invention, stating them to be the strip, and the enumeration of advantages on page 1280, Record to the same effect.[1]

Having previously cancelled his adhesive claims in response to a requirement for division (p. 1250, Rec.) Warth was, obviously, glad to take what little he could get in regard to a limited claim for a heating method and avoid the risk of receiving nothing as a result of an appeal.

---

[1] "The applicant's invention, from the standpoint of conception, consists in three steps. First, he perceived that the former practices of using (a) paste or glue, or (b) a separate strip of adhesive tissue, were cumbersome and objectionable. He saw the objections and set out to overcome them. The second step in his invention was to supply the medium and method by which these objections might be eliminated. In connection with the second step, he supplied a material of laminated character having (a) one exposed surface which is acid-resistant and gas impervious, and (b) another exposed surface with a thin coating of waterproof adhesive which softens under the application of heat, but is normally hard, so that the material can be conveniently handled. Thirdly, he went a step further and provided a complete method which involves the use of this material in such a way that caps might be more economically produced and without the defects of caps produced according to the earlier methods." (p. 1279, Rec.)

The same amendment (on p. 1280, Rec.) enumerated ten advantages of the invention, nine of which were directed to the advantages of the coated strip and only the tenth referred to heat and pressure.

The decision of this Court in *McClain* v. *Ortmayer,* 141 U. S. 419, is peculiarly applicable to the facts in this case. There the Court said at page 423:

> "Nothing is better settled in the law of patents than that the patentee may claim the whole or only part of his invention, and that, if he only describe and claim a part, he is presumed to have abandoned the residue to the public. The object of the patent law in requiring the patentee to 'particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery,' is not only to secure to him all to which he is entitled, but to apprise the public of what is still open to them."

Warth by having deliberately cancelled and failed to claim that part of his so-called invention relating to preliminarily heating the cork prior to the heat and pressure step as a means of obtaining the necessary heat, clearly, under the above authorities, dedicated that method to the public. To the same effect as *McClain* vs. *Ortmayer* are the following decisions of this Court.

This Court said in the case of *Deering* vs. *Winona Harvester Works,* 155 U. S. 286 at page 296,

> "It is possible that Olin was entitled to a broader claim than that to which he limited himself; but if he described and claimed only a part of his invention, he is presumed to have abandoned the residue to the public. McClain vs. Ortmayer, 141 U. S. 419."

In the case of *In re Ellis,* 86 F. R. (2d) 412, applicant made an application which was rejected. He appealed therefrom unsuccessfully and, subsequently, brought a suit under Section 4915 which he failed to prosecute. The Patent Office, and Court of Customs and Patent Appeals, both held he was estopped from making claims of the same scope in a subsequent application because he voluntarily abandoned the suit under 4915.

In the case of *In re Becker,* 74 F. R. (2d) 306, the Court of Customs and Patent Appeals held that the decision of

the Commissioner of Patents rejecting certain claims in an earlier application was *res adjudicata* on the issue of patentability of substantially similar claims in a subsequent application. The following cases are to the same effect,

Ex parte Crane, 32 Pat. Q. 80;
In re Stanton, 86 F. R. (2d) 337;
In re Crowell, 79 F. R. (2d) 746;
In re Murray, 64 F. R. (2d) 788;
In re Woodsome & Swan, 1926 C. D. 176; 10 F. (2d) 1003 (Court of Appeals District of Columbia).

Obviously this rule would apply with great force in a case where an appeal taken from a final rejection on the Art without any question of requirement for division was voluntarily withdrawn and the rejection acquiesced in by the applicant.

As further showing Warth's intention to abandon the preheating method, attention is called to the fact that two other applications entitled "Bottle Cap and Method of Making Same" were filed by him, one bearing Serial No. 360,895 on May 6th, 1929 (p. 1296, Rec.) and another bearing Serial No. 492,546 (p. 735, Rec.) on November 7th, 1930, in each of which applications the method of applying the necessary heat by means of the cutting plunger is shown. The drawings as to the heating apparatus being the same as in Patent 1,788,260 and the Reissue. In both of those applications method claims were made and cancelled because the Patent Office said the Cap was a separate invention from the method (pp. 757 and 1316, Rec.). No subsequent applications were ever made for these cancelled method claims so far as the record shows.

We submit that, if Warth had considered the preheating step valuable, he could easily and would have inserted a description and claims for the same in either of the two said applications.

The preheating Patent 1,967,195 is not a proper division of either application Ser. No. 159,473 filed Jan. 7, 1927 on which the parent Patent 1,788,260 issued, or of application Ser. No. 494,201, the alleged division thereof.

While the "preheating patent" (1,967,195) states on its face it is a division of 494,201 which is in turn a division of 159,473, such statement is clearly erroneous.

Patent Office rules 35 to 37 and 41 and 43 inclusive,* clearly define what must be done to obtain a valid divisional patent. The record shows Warth did not comply with those rules or even attempt to do so.

Petitioner's brief states (p. 7) that Ser. 494,201 (the application for strip material) was filed as the result of a Patent Office requirement for division in application for patent 1,788,260 and cited page 1250 of the record. We submit that the record does not justify the conclusion drawn by petitioner.

While it is true that the Office required division, the letter calling for same, referred to in plaintiff's brief and appearing on page 1250 of the record, required division between the adhesive material *per se* claimed in application 159,473 (Pat. No. 1,788,260) and the method claims in said application and **most distinctly it did not call for any division between the different steps involved in the heating method claims.**

Application 494,201, as filed, did not even comply with this requirement for the reason that the claims in said alleged divisional application were not directed to an adhesive *per se,* as were the claims in 159,473, the matter in regard to which the Patent Office insisted upon division. The claims were directed to an adhesively coated *strip.* It is true that the specification contained a description of the steps in the heating method, including preheating, but they were merely inserted as describing the way in which the strip material,

* See Appendix, pages 56/7.

claimed in that application, was to be used and were not made the basis of any claim.

In other words, in the application Ser. 159,743 (Pat. 1,788,260) the Examiner called for division between the method of applying the adhesive strips and the adhesive to be applied to the strip. No division was required in regard to any part of the *heating* method and the alleged divisional application as filed, which contained exactly the same disclosure as the parent patent, practically without change, not only did not claim any part of the heating method, but also failed to make the claims for an adhesive *per se* which had been taken out of the parent application pursuant to the requirement for division. **It claimed a third and distinct invention viz: strip material.** It is quite evident, therefore, that it cannot be considered a true division of application 159,473; certainly not the division called for by the Office action appearing in the Record. Serial 494,201 was ultimately abandoned as appears on pages 5/6, *supra*.

On April 4th, 1933, two years and five months after the filing of this application 494,201 for strip material, and two years and three months after the grant of patent 1,788,260 (the original of reissue 19,117, the patent in suit) and six years and three months after filing the application of Jan. 7, 1927 (Ser. 159,743) containing the preheating disclosure, Warth filed the application which resulted in Patent No. 1,967,195, inserting therein preheating claims, and was allowed not only the filing date of application 494,201 for strip material, but that of the original application.

Pursuant to Rule 43 of the Patent Office, Warth, in the amendment to application 159,473 cancelling the adhesive claims in response to the requirement for division, stated they were cancelled for that purpose, thus reserving the right to file a true divisional application to obtain *such claims* for the adhesive *per se* (p. 1251, Rec.).

This, of course, was not notice to any one inspecting the file that a divisional application was intended in regard to

any of the heating steps, claims for which were retained in the parent application. It is clear that Warth did not follow the rules of the Patent Office referring to divisional application.

It follows that neither petitioner's argument nor the decisions relied on by him on the question of divisional applications have the slightest application to the facts of this case.

Mere disclosure of invention in the Patent Office without a claim for the subject of the invention does not permit a patentee to subsequently claim the invention long afterwards.

It is the position of petitioner that because it had continuously on file an application disclosing the preheating step, although without any claims therefor, it was entitled to make the claims for that step and get the date of January 7th, 1927 when the application first disclosing that preheating step was filed and consequently there was no abandonment. The District Court so found and in support of its holding cited the case of *Writer* v. *Kiwad*, 63 F. R. (2d) 259. (Petitioner refers to that case on page 8 of its brief.)

With the utmost deference to the District Court, it is submitted that the facts in the cited case are in no way analogous to the facts in the case at bar and the case has not the slightest bearing. In the *Writer* v. *Kiwad* case Kiwad filed an application in 1926 and claimed the invention in issue, but pursuant to a requirement of division, cancelled the claims, the drawing and descriptive matter in 1927. The Writer application was filed in November, 1928 and matured into a patent in August, 1929. Kiwad did not file his divisional application until December, 1929 after his attention was called to the Writer patent. The interference was declared on March 18th, 1930.

It will be seen that the case is entirely and radically different from the case at bar for the reason that Kiwad's parent application had not matured into a patent before his divi-

sional case was filed. The claims in the Kiwad parent application were not allowed until April, 1930, four months after the filing of his divisional application (p. 264).

The Circuit Court of Appeals in the case at bar followed what we understand to be the well settled rule, viz., that a divisional application to be availed of must be for the same invention and must claim it. The Circuit Court of Appeals said (p. 1837, Rec.), in referring to Warth's application for strip material Ser. 494,201:

> "Previously, on November 7th, 1930, Warth had filed a divisional application No. 494,201 to which he had transferred the preheating method; it claimed only the spot material strip as an article of manufacture. As we have previously shown, Warth's patents Nos. 1,788,260 and re-issue 19,117 contained no claims broad enough to cover preheating. Hence there was no claim for the preheating method on file in the Patent Office from December 3rd, 1930 until April 4th, 1933 when Warth applied by his second divisional application for the preheating patent."

It would seem elementary that a man who makes an invention should assert his right to that invention from the outset and take all the steps the law allows to protect it. This Court said in the case of *Milburn Co.* v. *Davis, etc.,* 270 U. S. 390 at page 401:

> "he is not an inventor in the sense of the statute unless he makes a claim."

In the case of *Jones* v. *Larter,* 1900 C. D. 111; 92 O. G. 383, the Commissioner of Patents said at page 115:

> "The presumption of dedication to the public by disclosure in a patent may, it is true, under certain circumstances be overcome by having a concurrently pending application claiming it; but *I know of no authority* for holding that it is overcome *by an application which does not and was not intended to claim it,* merely because the claims are inserted therein long after the patent on the other case issues."

The Commissioner in his decision cited:

James v. *Campbell,* 104 U. S. 356, 382;
Miller v. *Brass Co.,* 104 U. S. 350;
Mahn v. *Harwood,* 112 U. S. 354.

That case (*Jones* v. *Larter*) was followed and quoted from in the case of *Union Typewriter* v. *L. C. Smith & Bros.,* 173 F. R. 288, 297, affirmed by the C. C. A. 3rd Cir. in 181 F. R. 968.

It has been pointed out that Serial No. 494,201 was for Bottle Cap Spot Material, an article of manufacture, the original claim and subsequent claims were all directed to the strip material. There was *never any claim for a method of any kind in that application.*

In the case of *Ex parte Stimson,* 1916 C. D. page 20; 226 O. G. 699, the Commissioner of Patents said:

> "It appears from the remarks accompanying the amendment that when the application was prepared the process claims were deliberately omitted. The inventions *are so widely different* that it would be necessary to support the process claims by a supplemental oath.
>
> "No reason is seen for permitting an applicant to nullify an election deliberately made and after the application has been prosecuted to an allowance *on one invention present claims for an entirely different invention even for the purpose of interference.*"

After a patent has once issued, a patentee cannot subsequently file another application and call it a division of the issued patent.

In the case at bar, Patent 1,788,260 (the original of reissue 19,117 in suit) issued on January 6th, 1931. The "preheating method" patent 1,967,195 in controversy purports to be a division of that application. The application for the "preheating method" was not filed until April 4th, 1933, more than two years after the issuance of Patent 1,788,260.

The question is thus presented whether after a patent has once issued an application filed subsequent to the issuance can be considered a division and obtain the date of the parent application.

The question is one that, so far as we have been able to ascertain, has not been squarely passed upon by this Court.

It would seem on principle that after a patent issues for an invention, the inventor should not be allowed to file an independent application as was done here, and obtain the filing date of the original. It would seem that such practice might tend to indefinitely extend the monopoly.

The decisions of the lower courts and of the Patent Office seem to be clearly against such practice. In the case of *Gladding-McBean Corp.* v. *N. Clark & Sons,* 16 F. (2d) 50, (C. C. A. 9) two patents to McBean were involved. The first, No. 1,184,254 was applied for May 17th, 1915, issued May 23rd, 1916 for a mold or die for manufacturing roofing tiles. The second, No. 1,289,492, applied for January 8th, 1917, issued December 31st, 1918 was for a process of making tiles shown in the first patent and for the tile itself as an article of manufacture produced by the first patent. The Court held the second patent void and said (p. 51):

> "In the second patent, that for the method and for the article, the patentee stated his purpose to be to enable the tiles to be made economically and in quantities, under such conditions that sagging or warping while the material is in the plastic state is overcome. The drawings in the second and first patents, and the descriptions of the process and products are very similar. In the first patent, however, although the process and article produced were described, McBean only claimed the die. The result is that the process and the article became dedicated to the public, and the second patent is void, unless he filed a divisional application for the method and product, *while the original application was pending and before patent thereon was issued.* The rule is general and well established that a patentee cannot include in a subsequent patent any invention embraced or disclosed in a prior one granted

> to himself. By his own act he has made it public property. Mahn v. Harwood, 112 U. S. 354, 5 S. C. T. 174, 28 L. Ed. 665."

In *re Spitteler* and *Krische*, 1908 C. D. 374, a patent had issued and after its issue it was sought to obtain its date for a divisional application on matter which was disclosed in the original patent as filed. The Court of Appeals of the District of Columbia said (p. 376):

> "But having amended that application so as to conform to the ruling of the Examiner, it was merged and the patent issued thereon. After that there was no application pending in the Office as a foundation for a division. The proceeding having been closed by the issue of the patent, there was nothing to be continued. The rule which permits a divisional application to relate back to the filing date of the original which also discloses its subject matter, as long as it remains open in the Patent Office, is a very liberal one that sometimes works hardship upon intermediate inventors, and it ought not to be extended to cases not clearly within it."

The case of *Wainwright* vs. *Parker*, 1909 C. D. 379, 142 O. G. 1116, is quite similar to the facts disclosed by the present record. There an application as originally filed disclosed four different species.

Claims sufficient in scope to cover all were originally included. After repeated objections the application was limited to one of the species and the drawing, specification and claims were amended, without appeal, to eliminate all reference to the device involved in the interference.

The application was allowed and went to patent. Four years afterwards the applicant filed the application which became involved in interference and sought to get the date of his original application. That was denied by the Court of Appeals and it said in its opinion (p. 380):

> "His original application having eventuated into a patent, there was nothing left pending before the Patent Office upon which it could act, or to which the later application could attach."

To the same effect are the following cases:

Conover v. *Downs*, 35 F. R. (2d) 59;
Model Bottling Machinery Co. v. *Anheuser Busch Brewing Assn.*, 190 F. 573 C. C. A. 8th Circuit;
Hayes-Young Tie Plate Co. v. *St. Louis Transit Co.*, 137 F. 80.

The case of *Overland Co.* v. *Packard Co.*, 274 U. S. 417, was cited by the District Court in its opinion and is relied on by petitioner in its brief here. It is submitted that the situation disclosed in that case is so radically different from that in the present case that *Overland Co.* v. *Packard Co.* has absolutely no application.

In that case there were two questions certified to this court. The first one was whether the applicant who cancelled a claim which was finally rejected on May 20, 1911 abandoned such claim or estopped himself from thereafter seeking it through a new application. The claim appeared in an application filed on Sept. 6, 1901 and the patent issued on Jan. 21, 1913. The claim was cancelled on May 17, 1912. The applicant cancelled the claim, stating it was his intention to file a divisional application, and, less than four months after the cancellation, the claim was filed in a divisional application before the parent patent issued in 1913.

This court answered the first question in the negative. It is true that the court did state that after an applicant had cancelled a claim the Commissioner of Patents might have refused to accept it in another application because the cancellation was made without the consent or suggestion of the Office, but the fact that the Commissioner in the exercise of his discretion did permit a new application was a waiver of his right to refuse to accept it, and the patent issued thereon was therefore valid. The court in its decision cited several cases, on pages 420 and 421 of its opinion, upon the subject of the application of the principle of *res adjudicata* to proceedings in the Patent Office which sustained its conclusion.

The second question certified to the court in the *Overland* case was whether a patentee should be penalized for waiting the full statutory time before amending his application. That question was also answered in the negative.

It is true that in *Overland Co.* v. *Packard Co*, a disclosure of the subject of the claim in issue was made in an application filed by the patentee on August 25, 1899 which resulted in a patent on July 13, 1900. In that application the patent office required division and the applicant cancelled the description and drawing which supported such claims and the patent issued in 1900 merely covered the remaining claims. On September 6, 1901 he filed another application not a divisional, disclosing and claiming the subject matter in the suit. There was thus an interval of fourteen months between the issuance of the patent in July and September 6, 1901 on which the patent in suit was based. As to that phase of the case, it would seem to resemble somewhat the case at bar. The differences, however, are that Cowles, the inventor in the *Packard* case, promptly indicated an intention to claim and protect his invention instead of deliberately abandoning, the same, to obtain a restricted patent as Warth did. The 1901 application was filed 14 months after the issue of the first patent applied for in 1899, and Cowles stated, when cancelling the claims in the second application, that he intended to file a division claiming the subject matter, which he did within 4 months. **In the meantime no intervening rights had vested in any third party.**

The Alleged Inadvertent Issue of Johnson Patent No. 1,852,578.

Petitioner on pages 8/9, 34/5 of its brief says the issue of the Johnson patent was an inadvertence on the part of the Patent Office and an interference should have been declared by the Patent Office between the application for the Johnson patent filed November 26th, 1929, and the application for the parent Warth patent No. 1,788,260. This is

the first time that petitioner has raised that issue. In all its various briefs before the District Court, the Circuit Court of Appeals, and its briefs on the application for the writ of certiorari, petitioner never raised this point.

The Record shows clearly, however, that there is no foundation for this contention and that the Johnson patent is properly and regularly issued.

Petitioner has overlooked Rules 93 and 94 of the Patent Office which provide that interferences are instituted only between applications "claiming substantially the same patentable invention and may be instituted as soon as it is determined that *common patentable subject matter is claimed* in a plurality of applications, etc."

The certified copy of the file wrapper of the Johnson patent put in evidence by petitioner (Ex. 87, p. 676, Rec.) shows that it was filed on November 26th, 1929 and the first Office action therein is dated September 10th, 1930 (p. 715, Rec.) and stated that certain claims, including the three claims in controversy "are allowable as at present advised."

All of the claims in Serial No. 159,743 (the application resulting in Patent No. 1,788,260) had been finally rejected by the Primary Examiner on February 4th, 1930 (p. 1256, Rec.). An appeal was filed to the Board of Appeals by applicant's attorneys on July 18th, 1930. Consequently, when the Examiner in September 1930 rendered his first action on the Johnson patent there were no allowable claims pending in the Warth application. **Certainly the Examiner could not be expected to declare an interference between an application and another application in which the claims had been held unpatentable by the Office, and on which an appeal was pending on the question of patentability.**

As has been pointed out the description and claims on appeal in the Warth application for the preheating step were cancelled and abandoned on December 3rd, 1930.

The next Office action in the Johnson application is dated July 30th, 1931. At that time the Warth patent had issued without any disclosure or claims for the preheating method.

Certainly, the Examiner would not be justified in declaring an interference between an application and an issued patent, the file of which showed that the matter claimed by the second applicant had been deliberately and voluntarily cancelled and eliminated from the first application without any notice of reservation of its being claimed in another application. **In other words, when the Examiner in charge of the Johnson application made his interference search, there were no method claims of any kind on file in Warth's applications upon which Petitioner relies for continuity. Neither were there any method claims in application numbers 360,895 or 452,596 for bottle cap and method of making same referred to on page 13 supra of this brief.** On the point that no interference should have been declared attention is called to *Gold* vs. *Gold*, 34 App. D. C. 229, Com. Dec. 1910, page 269.

It is quite true that in his action of July 30th, 1931 the Examiner rejected claim 35 of Johnson on the Warth Patent No. 1,788,260. An inspection of that claim 35, however, (p. 713, Rec.) shows it contained the statement, "then placing the linings and the caps under heat and pressure to render the adhesive viscous and effect an intimate contact between the linings and pads." That claim was, of course, broad enough to include claims cancelled by Warth in order to obtain the Warth Patent No. 1,788,260 and for that matter was broad enough to read on the patent to McManus No. 1,402,780 and the patent to Alberti, No. 1,401,300 mentioned in the decision of the Examiner of Interferences quoted on page 50 of this brief, *infra*.

It is significant that the Examiner allowed the three claims in controversy over the disclosure of the issued patent to Warth No. 1,788,260.

Publication.

Petitioner states on page 11 of its brief that inasmuch as the disclosure of the preheating step and the claims therefor had been cancelled during the prosecution of Patent No. 1,788,260, obviously, they did not appear in that patent when

it issued on January 6th, 1931 and, consequently, there was no publication of that matter.

It is, of course, true that the cancelled matter did not appear in the issued patent. It is equally true, however, that when a patent issues the entire file wrapper is open to the public. It is a matter of public record.

Ludlam Steel Co. vs. *Terry,* 37 F. R. (2) 153 at 165.

This Court said in the case of *Mahn* vs. *Harwood,* 112 U. S. 354 at page 362:

> "Whenever it is manifest from the patent itself, compared with the original patent and *cognate documents of record,* or from the facts developed in the case etc."

To the same effect is the case of *James* vs. *Campbell,* 104 U. S. 356 at page 368.

Anyone looking at the file of Patent No. 1,788,260 immediately after it issued on January 6th, 1931 would see that the preheating disclosure and claims broad enough to include same had been cancelled and under the authorities we have cited on this brief would naturally assume that that matter and any claims therefor were abandoned by the inventor and dedicated to the public. As appears from the Appendix on page 57 of this brief *infra,* Rule 43 of the Patent Office requires that when two or more applications are pending relating to the same invention all showing, but only one claiming the same thing, the application not claiming it must contain reference to the application claiming it. There is no reference made to any co-pending application either in the file of the application for Patent No. 1,788,260 nor in Serial No. 494,201.

This Court said in the case of *Milburn Co.* v. *Davis etc. Co.,* 270 U. S. 390 at page 402,

> "A description that would bar a patent if printed in a periodical or in an issued patent is equally effective in an application so far as reduction to practice goes."

POINT II.

Intervening Rights.

Petitioner says there are no intervening rights and argues that the case is controlled by the decision of this court in *Chapman* v. *Wintroath* because Warth copied the claims of the Johnson patent within two years of its issue.

Petitioner also says that the District Court found there were no intervening rights because it found that the machines purchased by respondent from Johnson from 1928 up to 1933 had no preheating device, and, inasmuch as the decision of the Circuit Court of Appeals did not in so many words expressly state that it reversed the finding of the District Court, respondent is precluded in this court from referring to the evidence on the subject.

In support of this contention, ~~respondent~~ petitioner relies upon a decision of this court in the case of *Adamson* v. *Gilliland*, 242 U. S. 350. That case does not support petitioner's contention but is authority for the proposition that this court will examine a record, even when there were unanimous findings by both the lower courts.

The Court of Appeals expressly reversed the District Court on its finding as to abandonment. It expressly reversed the District Court on the question of infringement of the heated plunger patent (Reissue 19, 117). The situation, therefore, is that of the four judges who have passed on the case, two have held in favor of petitioner on the patents in controversy and two in favor of respondent.

It would seem clear, therefore, that under such circumstances respondent is justified in asking this court to look into the record sufficiently to see whether the findings of fact by the District Court are supported by the evidence. *Berlin Mills Co.* v. *Proctor & Gamble Co.*, 254 U. S. 156; *Thomson Spot Welder Co.* v. *Ford Motor Co.*, 265 U. S. 445.

Respondent contends that the finding of the District Court (p. 1803, Rec.) that

> "The machines purchased by defendant from Johnson in 1928, had no preheater, and I am convinced that defendant made no further purchase from Johnson until 1933, therefore the defendant has not proved any use of the preheating method, to anticipate the filing date of the first divisional application Nov. 7th, 1930 or the filing date of the second divisional application April 4, 1933"

is not only unsupported by the facts in the record but is clearly contrary to the facts in the record, some of which are documentary and others are impliedly, if not expressly, conceded by petitioners own witnesses and statements in its brief in this Court.

The statement that "defendant made no further purchase from Johnson until 1933" is shown to be incorrect from the following documentary evidence. Respondent's Exhibit Q (pp. 881/2, Rec.) consists of bills from Johnson to respondent dated September 17th, 1928, December 19th, 1928, March 30, 1929 and April 30, 1929 for spotting machines. The words in those bills "extra head, roll feed" show that the machines had the preheating device (XQ.'s 479/87, pp. 260/61, Rec.).

Even if the machines did not have the preheating device, the purchase of those machines shows the finding of the District Court above quoted that respondent *did not purchase any machines* from Johnson between July 1928 and 1933 is clear error.

It appears from the cross examination of Johnson by petitioner's counsel, pages ~~2868~~ and Petitioner's Exhibits 36/7, pages 609/10, Record that Johnson had made and sold in April, 1928 a center spot machine for the Armstrong Cork Co. which proved unsatisfactory; that it was returned by that company as being unsatisfactory because the tinfoil center spots would not stick and Johnson altered it by tak-

ing the heat out of the cutting punch and preheating the cork. On this point we quote XQ's 115 to 119, found at pages 173 of the Record of Johnson's testimony, as follows:

> "XQ115. When you say in this letter that you are going to see what you could do in regard to not having the tin-foil disc stick to the punch, do you recall what that was? A. Yes, I sure do.
>
> XQ116. What was it? A. I took the heat out of the cutting punch altogether and installed two heaters in front of it, and also a space heater I installed before the tin-foil disc was cut and inserted. And that kept the cutting punch cold.
>
> XQ117. And that was done after you wrote this letter of October 5th? A. That was done at that time, you see I had that machine practically completed at that time.
>
> XQ118. You say here you were going to see, 'and I now have to see what I can do in regard to not having the tin-foil disc stick to the punch.' A. Well, that is the word I suppose I used, I was working on it at this time.
>
> XQ119. It was about this time, October 5th, that you put on this pre-heater? A. Yes."

Attention is also directed to the petition for public use proceedings instituted by Johnson during the Warth-Johnson interference and the affidavits attached thereto. Those public use proceedings comprise a petition and affidavit by Johnson, pages 901-9, Record, an affidavit of John O. Seifert, the attorney who prepared the patent application for the Johnson patent, and is to the effect that in January, 1929 he called at Johnson's place and saw in operation a machine having the preheating feature and that the drawings of the application for the Johnson patent as filed correctly described the machine he saw in January, 1929. That affidavit is corroborated by the affidavit of Alfred Krafft, pages 917-18, Record, to the effect that he called at Johnson's place of business in January, 1929, saw the machine and made the drawings of the application of the patent therefor. The

affidavits of Rudolph Fusco, John W. Larson and Charles W. Molander, employees of Johnson, are to the same effect. There is an affidavit from Nicholas Corsi, who is associated with an independent manufacturer, which states that during the month of October, 1930 a firm, the Arrow Bottle Cap Corp., purchased a machine from Johnson having the feature of preheating the cork and that it was made in accordance with patent 1,852,578 to Johnson.

Before the termination of the interference, and after the purchase of the Johnson patent by petitioner, the public use proceedings were terminated and the orginal petition and affidavit were withdrawn from the Patent Office by stipulation of the parties, page 165, Record. Petitioner itself offered in evidence a certified copy of the file history of the Johnson patent showing it was filed on Nov. 26th, 1929.

It is most improbable and almost impossible to believe that if Johnson found the heated cutting punch impractical and changed to preheating the cork, as shown in his patent, as early as October, 1928 and took steps as early as January, 1929 to apply for a patent, he would have sold to respondent in September and December, 1928, and March and April, 1929, machines which did not have the preheating feature.

The documentary evidence, including petitioner's own exhibit 36/37, the cross-examination of Johnson showing that he abandoned the heated plunger at least as early as October, 1928, the bills to respondent from Johnson from September, 1928 to April, 1929, show beyond question that the Court was in error in holding that none of the machines purchased by petitioner from Johnson between 1928 and 1933 had the preheating device and the decision is clearly against the weight of evidence.

Respondents evidence further shows Test Cohn, pages 214 and 258/9, Record; Rasmussen, page 281, Record; Eisen, page 294, Record; Ketterer, page 200, Record; Respondent's Exhibits NNN to TTT, pages 1519/68, Record, that between Aug. 1928 and the trial of the case Respondent had made by

the preheating method approximately one million gross of caps having a metal foil center spot secured by gutta-percha to one customer, the Goetz Brewery and large quantities to other companies (p. 237, Rec.). All the foregoing evidence shows a clear intervening right on the part of Respondent.

In addition to the intervening rights acquired by respondent by the purchase and use of machines purchased from Johnson in 1928 and 1929, having the preheating method, attention is called to patent #1,921,808 (p. 596, Rec.) issued to Benno Cohn, secretary of respondent. That patent discloses and claims a method of making caps wherein the cork disc is preheated and the cork disc and center spots are all inserted in one machine.

The application for that patent was filed July 20th, 1932, nine months before Warth filed his application on April 4th, 1933 for the alleged divisional preheating method patent in suit.

Petitioner knew in 1930 that Respondent was making and selling Center Spot Caps.

Furthermore as showing intervening rights of respondent and its good faith attention is directed to respondent's Exhibit PPPP, page 1605, Record, a letter from Respondent to Petitioner dated October 10th, 1930, protesting against the representations of Petitioner's salesmen to the effect that the sales of center spot caps by respondent was an infringement of Petitioner's patents. The reply of Petitioner is found at page 1605, Record and is to the effect that no such further statements would be permitted by its salesmen. Respondent relied on this letter of Petitioner and showed it to its customers as proof of the fact that Respondent was "not infringing on anybody's rights" (p. 311/12 Rec.) and in reliance thereon purchased four more machines from Johnson in 1933 (Respt.'s Ex. R, p. 883/6, Rec.).

Petitioner had knowledge in October, 1930, that Respondent was engaged in the manufacture and sale of center spot

caps. It was Petitioner's duty to have then ascertained what method Respondent was using. The Record does not show that there were any manufacturers of center spot machinery other than Johnson and Nagy who had made center spot attachments in 1916 and 1921 (p. 139 and 142/3) for other manufacturers of center spot caps. After that and in Dec. 1930 Petitioner cancelled all reference to preheating.

Petitioner's Exhibit No. 84 (p. 659, Rec.) is a letter dated March 21st, 1933 from petitioner to respondent offering to give respondent a license under five patents, three of which have been held invalid by the courts below in this case.[1] One was not involved in the litigation and the other one was patent 1,788,260, the original of the re-issue. Respondent declined to take a license under these patents. Various interviews were had between the officers of petitioner and respondent looking to some amicable adjustment, several conferences were had between the officers of the respective parties and the officers of the petitioner called at respondent's plant in April and August, 1933 (pp. 222/3, Rec.). The respondent declined to sign a license agreement which was signed by all the other manufacturers in the trade and provided for a fixing of the price by petitioner herein (pp. 1599-1601, Rec.) on the ground that it did not use the subject matter of some of the patents and on the further ground that it had its own patent for a method of manufacture (p. 309, Rec.). That patent is No. 1,921,808 issued to Benno Cohn, application filed July 20th, 1932, patent issued August 8th, 1933. That patent describes and claims the preheating of the cork the same as in the Johnson patent and in the preheating method patent in controversy and differs from the Johnson and Warth patents in one very important particular and that is in the Cohn patent the cork disks are placed in the metal shell and the center spots are applied all in one machine, whereas in the Johnson and Warth and all

[1] That was before the filing of the Warth alleged divisional application on Apr. 4th, 1933 resulting in the preheating method patent.

other prior art machines and patents for applying the center spot, the cork cushion disk is secured in the shell in one machine and the center spot is put on the assembled crown in a different and separate machine.

On August 8th, 1933, the vice-president of petitioner and its counsel visited respondent's plant in another attempt to settle the negotiations (p. 309, Rec.). During that visit they were shown defendant's plant in operation. They saw respondent was using the machine of the Cohn patent which had the preheating device. They were informed and knew that respondent had bought its machines from Johnson. They were given samples of the bottle cap strip material thermoplastically coated which respondent was using and were given caps made by respondent (p. 223, Rec.).

Petitioner's vice-president Fusting testified that petitioner did not know of the use by respondent of a Johnson machine or method until his visit to respondent's plant (p. 521, Rec.). Petitioner could have at any time after the date of that visit on August 8th, 1933, brought suit for infringement on claim 1 of Patent No. 1,788,260 which is claim 1, without change, of the re-issue heated plunger patent in controversy. It did not do so, however. On January 23rd, 1934 it filed its application for re-issue of 1,788,260. It said nothing about and made no attempt to insert claims broad enough to cover the preheating step. On December 12th, 1933, after knowledge that respondent was using the machine of the Johnson patent, petitioner purchased the Johnson patent and took an assignment thereof. It made no attempt to bring suit until after the issue of its patent No. 1,967,195 for the preheating method on July 17th, 1934. The present suit was started in September, 1934.

In *Railway Co.* vs. *Sayles,* 97 U. S. 554, this Court held that an original specification could not be so enlarged by the filing of a new application, based upon an earlier application, as to appropriate that which had in the meantime gone into public use, or where there has been an adverse intervening right.

Petitioner's Laches Began in March, 1929 When it Bought From Johnson, an Independent Manufacturer of Assembling Machines, Five Machines Constructed in Accordance With Johnson Patent 1,852,578.

There is no dispute that petitioner bought five machines from Johnson between February and July 31st, 1929, the invoices, bills of lading, and correspondence relating thereto are found at pages 888-900 of the Record.

This is admitted in petitioner's brief (p. 22). It was so found by the District Court (p. 1802, Rec.) and held that their purchase by petitioner did not affect its rights covered by the application of January 7th, 1927 for Patent No. 1,788,260 and cited authorities in support of that proposition.

Petitioner refers to this on page 22 of its brief and states:

> "Respondent did not contend before the lower courts, nor did either Court find, that petitioner's admitted use of the preheating invention for some years prior to the filing of the Warth divisional application invalidates the patent."

Petitioner is in error in making this statement. Respondent contended most strenuously in the District Court and the Court of Appeals that the purchase of these five machines from Johnson by petitioner in 1929 clearly invalidated the alleged divisional patent for the "preheating" method. *If respondent had not so contended, the District Court would not have gone out of its way to make the finding we have referred to at the beginning of this chapter.* The Circuit Court of Appeals necessarily made no express reference to the subject in its decision for the reason that such reference was unnecessary in view of the fact that the Court of Appeals held the alleged divisional patent invalid by reason of laches and abandonment.

The District Court found, as we read its decision, and petitioner expressly admits (p. 22 of its brief) that these machines shipped from Johnson to petitioner in 1929 had the preheating device. The error in the finding of the District Court lies in the statement that the machines were built on "special order" for petitioner. We assume from that statement of the District Court that it meant petitioner gave Johnson instructions to build the spotting machines with the preheating device. That finding is completely contradicted by petitioner's own acts and the correspondence had with Johnson.

It is clear beyond all question that machines used by both parties are radically different in mechanical construction. The District Court so found (p. 1791, Rec.). That the machines are different is emphasized by the fact already referred to (p. 7, Br., *supra*) that when Warth copied the Johnson method claims for interference purposes, he did not copy the apparatus claims. He could not do so, because he never invented the apparatus of the Johnson patent. It is admitted (p. 32, Petr.'s Br.) and appears in the testimony of Johnson (p. 160, Rec.) that Johnson was an independent manufacturer of assembling machinery and had been so engaged for about thirty-three years. He "designed a great deal of the machinery *which is now in use in this Crown industry*" (p. 176, Rec.). That the machines were bought by petitioner after conversation and correspondence with Johnson as to the machines is shown by petitioner's letter of February 27th, 1929 (p. 891, Rec.) which states:

> "Referring to your conversation and correspondence with our Dr. Warth, would suggest that you send us *on approval* the machine for adhering the gutta percha lining to the tin foil. Also the machine for cutting the tin foil and fastening same to the cork washer on finished crowns."

The testimony of petitioner's witnesses Goebel (p. 413, Rec.) and its vice-president Fusting (p. 521, Rec.) admits the purchase of these machines. Both of these witnesses

say the machines were purchased for use in its Canadian plant; that they were shipped from Baltimore to be "tuned up" and then shipped to Canada (p. 423, Rec.).

Yet Petitioner alleges on page 9 of its brief that there was no necessity for Warth to claim the preheating method until the Johnson Patent came to his attention.

A most significant feature of the transaction is that petitioner did not attain its high production of 520 caps per minute until 1930 after it had bought the Johnson machines (p. 413, Rec.).

The testimony of Fusting (p. 521, Rec.) petitioner's vice-president is to the effect that petitioner always built its own spotting and assembling machinery and the excuse for buying these five machines from Johnson was that petitioner's plant was crowded with work at that time.

We have already adverted to the evidence showing that at least as early as October, 1928, Johnson had discarded the method of heating the plunger and adopted that of preheating the cork and that while his application was not filed until November 26, 1929 his attorney and the draftsman had seen a full sized operating machine for the method of preheating the cork in January, 1929.

It is submitted therefore that petitioner had complete knowledge of the preheating method of Johnson's machine, and quite apart from the question of abandonment by proceedings in the Patent Office, its laches began to run when it obtained knowledge of Johnson's preheating method and the purchase of these five machines from him between March and July, 1929.

Warth v. Johnson Interference 66,201.

This interference was really an ex parte proceeding and was not a bona fide interference. Obviously this Interference was instituted after Petitioner purchased the Johnson patent for the sole purpose of abrogating the right of respondent to use the machines it had purchased from Johnson in

Page Tightly Bound

the years 1928 and 1929. Respondent by the purchase of those machines from Johnson before the issue of his patent had acquired a license under the Statute Sec. 4899 to use those and its right could not be divested by any subsequent act on the part of Petitioner. Especially as Warth did not contend he invented the apparatus, *Keystone Type Foundry* vs. *Fastpress Co.*, 272 F. R. 243; *Dable Grain Shovel Company* v. *Flint*, 137 U. S. 41; *DeForest Radio Telephone Co.* v. *United States*, 273 U. S. 236.

Johnson's preliminary statement (p. 1765, Rec.) alleges a date of conception in the fall of 1925. No proof of the facts alleged therein are put in evidence, for, as pointed out at pages 7/8, *supra*, after the interference was declared, and a motion made by Warth to shift the burden of proof to obtain his filing date of January 7th, 1927 had been denied, the petitioner purchased the Johnson Patent and after its purchase the attorneys for both sides made a stipulated record found at pages 1615/27 of the Record which did not contain the preliminary statement of either party. Warth's preliminary statement is not in evidence. It was on that record that the Examiner of Interferences rendered a decision (p. 660, Rec.) reversing his prior holding and awarding priority to Warth.

Under Rule 94 of the Patent Office, petitioner could have and should have decided whether to take out the claims in the Warth application or retain the Johnson patent which it owned. **Instead of doing that, it made up the stipulated record, after its purchase of the Johnson patent, in order to obtain the filing date of Warth for the claims in issue which was prior to that of Johnson with the undoubted purpose of abrogating rights which respondent had acquired to the use of the Johnson machine by the purchase of such machines from Johnson.**

The District Court held that petitioner could not elect between the Johnson patent and the Warth application because it did not have title to the Johnson patent (p. 1801, Rec.). The record shows that petitioner did have title to the Johnson patent before the stipulated record was made up

because it purchased it on December 12th, 1933 and on the same day issued a license to Johnson saying petitioner was the owner of Johnson Patent 1,852,578 (pp. 923-925, Rec.).

Petitioner now contends (p. 32 of its brief) that Johnson derived his knowledge of the invention from Warth. The testimony of petitioner's witness McManus is that it was April or May, 1928 (p. 348, Rec.). Goebel said it was March or April (p. 375, Rec.) and another witness *for petitioner*, Volpe, said it was April or May (p. 360, Rec.). There was no contemporaneous documentary evidence offered substantiating any date. If it was either March or April, it is inconceivable that Johnson would sell a machine to the Armstrong Cork Co. on April 24th which did not have the preheating device, as appears from petitioner's Exhibit 37 (pp. 609/10, Rec.) previously referred to. It is that machine, the one sold to the Armstrong Cork Co. that Johnson fixed up in October, 1928, as appears from his testimony quoted on page 28 of this brief, *supra*.

Johnson was scrupulously careful of the rights of others and would not knowingly make a device or take any steps that would involve him in litigation as shown by *petitioner's own* Exhibit 37 (p. 609, a letter from Johnson to the Armstrong Cork Co.) which states in part on page 610:

> "The price on the two machines together is $1500., but I have heard that McManus claims to have a patent on sticking the tin foil to the corks with adhesive. * * * but I want to find out first as I do not want to infringe on anybody's patents.
>
> "I could send you this machine with the understanding that if it should be patented I would have the right to call this machine back or if you would wait until I got the copy of the patent."

It will be noted that letter is dated April 24th, 1928. If the testimony of Goebel who said that Johnson's visit was in March or April, 1928, or Volpe, who said it was April or May, is correct, then the letter from which we have quoted

which is dated April 24th, 1928 indicates two things. The first is that Johnson has stated in his letter that he would not willingly appropriate anyone else's invention; and the second thing is that it renders petitioner's contention that Johnson derived knowledge of the preheating from petitioner utterly unfounded for it cannot be assumed that Johnson an experienced builder of assembling machines, would have shipped to the Armstrong Company in April, 1928 a machine which did not have the preheating device.

Petitioner in his brief having raised the question that Johnson, from whom respondent bought his machines, obtained his knowledge of the invention from a visit to petitioner's factory, it is only proper as bearing on the credibility of the witnesses for petitioner on that point and on their testimony bearing on the date of invention of the preheating method, to refer to the proceedings in the Patent Office showing the irregularity and misrepresentations made to the Patent Office by petitioner and the patentee Warth, and the concealment of material facts, not only in the two patents in controversy, but in some of the other patents upon which the suit was brought and which were held invalid by the Courts below.

One of the patents held invalid by both courts below is the Warth patent 1,899,783 which is for a bottle cap and method of producing same, the claims of which are for a center spot of hard varnished paper secured by gutta percha. Petitioner admitted in answer to interrogatories that it had been making caps with metal and paper center spots secured by gutta percha as early as 1917 (Int. 20; 27; 31/2; pp. 1589/91, Rec.). That is 12 years before application for that patent was filed. The record shows that in 1926 Warth filed an application for precisely the same thing, viz., Ser. 130,961, page 1731, Record and having the same disclosure and substantially the same claims as issued patent 1,899,783 (p. 1735/8, Rec.). That application was rejected by the Examiner as showing no invention over the art (pp. 1745/48,

Rec.) and the Board of Appeals affirmed that decision, page 1758, Record on the ground that the center spots were old and that "the use of elastic cement is, in our opinion, an obvious feature in attaching the disc". Apparently the Examiner who had charge of the application for patent 1,899,783 either overlooked the decision or at least he was not informed of the decision of the Board, for he granted the patent in spite of it. During the prosecution of that application, Warth made an affidavit in which he said, page 790, Record, after a statement of his difficulty in finding a suitable adhesive:

> "The only adhesive available at the time having these characteristics, I found to be gutta percha, or a mixture of gutta percha and other materials, making the adhesive essentially gutta percha."

When called as a witness, Warth admitted and petitioner's witness Goebel said the use of gutta percha as an adhesive for center spots was discovered by a chemist named Daly about a year before Warth entered the employ of petitioner, pages 472/4 and page 368. See also page 409, Record.

As to the patent to Warth, 1,899,782 for strip material, it was clearly shown to be old and the court so found, page 1781, Record and no appeal taken therefrom. That patent was used as a basis for a license agreement among various paper manufacturers (p. 965, Rec.) not to sell any strip material adhesively coated to any manufacturer of center spot caps who was not a licensee under the license agreement made with petitioner previously referred to found at (pp. 1597/1603, Rec.).

As to the heat and pressure patents, the method was disclosed in the abandoned application of Warth found at page 1737, Record, in which, after describing the affixing of the center spot to the cork disc by heat and pressure, he said:

> **"It is noted that apparatus for cutting and assembling spot centers is known in the art."**

POINT III.

The law applicable to re-issues and divisional applications.

We beg to refer to the language of this Court in *Webster Co.* v. *Splitdorf Co.* and particularly to the last sentence which is as follows (p. 471):

> "In other words, we follow in that respect the analogy furnished by the patent re-issue cases."

It will be readily seen that *Chapman* v. *Wintroath* which involved a divisional application only has no application to the facts in this Record for the reason that in *Chapman* v. *Wintroath* the parent case had not issued when the divisional case was filed as in the case at bar. Furthermore, in *Chapman* v. *Wintroath* the unclaimed disclosure of the subject matter of the claims was for the same invention, and there had been no voluntary cancellation of the subject matter of the divisional patent in order to obtain a patent. In the case at bar the disclosure relied on was in an application for an entirely different invention, viz., strip material, an article of manufacture, and no method claims of any kind were ever made in that application.

Divisional applications are not expressly sanctioned by the Statute. The practice of filing such applications is merely a matter of expediency, authorized by the Rules of Practice of the Patent Office (Rule 41) sanctioned by this Court in *Steinmetz* vs. *Allen*, 192 U. S., 543 (and other courts), and generally recognized by those dealing with patents. It might be said that the filing of divisional applications has been legalized by custom.

The practice in the Patent Office for many years has been to permit the filing of a divisional application at any time prior to the issuance of a patent upon the parent application.

When a patent has once issued, however, any correction or alteration therein must be by re-issue (R. S. 4916), otherwise

it must be dealt with strictly in accordance with the Statutes provided for this purpose.

This long established Patent Office practice was modified by the decision of the Court of Appeals of the District of Columbia in *Rowntree* vs. *Sloan*, 45 App. D. C. 207, which held that an inventor, during the pendency of his application, could not assert a claim for subject matter disclosed in said pending application in a divisional-application if he neglected to file such divisional application within one year from the granting of a patent to a third party, abandonment by laches being presumed because of the delay in asserting the claim.

In *Chapman* vs. *Wintroath*, 252 U. S. 126, this Court held that while an inventor might lose his rights to assert a claim by a delay in filing a division of a pending application, (the basis of the decision in *Rowntree* vs. *Sloan*) there was nothing in the Statutes to justify a fixed time of one year, and that by analogy to the two year public use and two year publication specified in R. S. 4886, a delay of two years was not such an unreasonable delay as would bar an inventor from asserting a claim derived from a patent issued to a third party.

In *Webster* vs. *Splitdorf*, 264 U. S. 463, the decision in the *Wintroath* case was amplified by an analogy with re-issue cases in which a broadened re-issue must be applied for within two years from the grant of the patent except where a further delay is accounted for and caused by special circumstances which show it to have been not unreasonable. See last paragraph of the decision on page 471.

We understand the settled law in re-issue cases to be that applications therefor, in the absence of special circumstances, must be made within two years from the date of issue *and that any bona fide intervening rights bar the same no matter when acquired.* *Ives* vs. *Sargent*, 119 U. S. 652; *Coon* vs. *Wilson*, 113 U. S. 268 at 276-7. That is, a patent may not be validly re-issued if said re-issue makes that unlawful which was previously lawful. *Coon* vs. *Wilson, supra.*

In the *Wintroath* case, in the *Webster* vs. *Splitdorf* case and in various reported decisions following these cases, the divisional application was always carved from a *pending application* for the same invention and the delay was predicated upon a patent issued to an independent inventor during the pendency of the original application and prior to the filing of the divisional application.

In the case at bar patent 1,788,260, the original parent patent, the date of which is sought by plaintiff, had *issued more than two years prior* to the filing date of the application for 1,967,195, the "preheating" patent. The Johnson patent had issued approximately one year prior to the filing of said preheating application, to say nothing of other rights which had intervened set forth at pages 26 *et seq. supra.*

The analogy between a divisional application filed during the pendency of its parent application for the purpose of interference with a patent issued to a third party, and a reissue application can readily be understood, but it is thought that this analogy is even greater, where, coupled with the issuance of a patent to an independent inventor, there has been an actual grant of a patent upon the original application upon which a divisional application is alleged to be based, because under such circumstances the divisional application is subject not only to the infirmities of an application carved from a pending application, but all those based upon the record of the proceedings in the Patent Office showing the limitations imposed by the Commissioner of Patents, and acquiesced in by the inventor as a condition precedent to the grant of the patent from which the divisional application is carved.

Unquestionably the effect of the claims in patent 1,967,195, was to make unlawful that which previously had been lawful to respondent, namely, the use of machines purchased in good faith from Johnson, or the use of the preheating method in any manner. Obviously, petitioner could not have accomplished this by re-issue of 1,788,260 (quite apart from the rule that a claim cancelled to obtain a patent may

not be reinstated by re-issue, or at all, *James* vs. *Campbell, supra*) because of the principles in regard to re-issue patents laid down in the cases previously cited herein.

It is apparent that Warth, or rather his assignee, is endeavoring to take advantage of the liberal attitude of the courts towards divisional applications to accomplish something which he would not be permitted to do by re-issue.

We submit, therefore, that the resemblance between the instant case and the reissue cases is marked, and much closer than that disclosed by the facts in *Webster* v. *Splitdorf, Chapman* v. *Wintroath,* or any of the other cases referred to in petitioner's brief. This would be so even if the application for patent No. 1,967,195 had been a true divisional application which as we have shown at pages 14/16 *et seq. supra,* it is not.

Without questioning the propriety of the statement in *Chapman* vs. *Wintroath,* appearing at page 137 of the report, quoted on page 14 of petitioner's brief, it should also be noted that this Court stated in *James* vs. *Campbell, supra,* referring to the conditions sought to be avoided by the filing of re-issue applications in lieu of new applications:

> "Patentees avoid doing this (filing a new application) when they can, and seek to embrace additional matters in a reissue, in order to supersede and get possession of the rights which the public, by lapse of time or other cause, have acquired in the meantime."

And also in *Leggett* vs. *Avery,* 101 U. S. 256,

> "The allowance of claims once formally abandoned by the applicant, in order to get his letters-patent through, is the occasion of immense frauds against the public."

POINT IV.

There is no proof of infringement of reissue 19,117 by respondent.

There is no proof in the record that respondent ever made a cap by the heated plunger (reissue patent) nor is there any reference in petitioner's brief to such evidence. The only testimony as to infringement is that of the visit of petitioner's officers to respondent's plant in 1933 when it saw respondent using a method involving preheating the cork.

There is an argument by petitioner that the claims of reissue 19,117 should be construed broadly enough to cover both methods of heating. It is thought unnecessary to discuss that question because the proceedings in the Patent Office, the prior art and petitioner's slide machine referred to at the end of the brief show that if there is any invention at all in reissue 19,117, the claims must be limited as correctly held by the Circuit Court of Appeals to the application of heat and pressure by a **heated cutting plunger** and **this** alone.

On pages 27 and 28 of petitioner's brief we find the following statement which is emphasized by Italics:

> "since the heated punch was not part of his original disclosure and was added to the application disclosure during the prosecution of the application merely as an example of a way 'to utilize at the time of assembly, both heat and pressure.' In re Dilg, 25 App. D. C. 9, 11."

This statement is clearly incorrect and not supported by the record. On the contrary the original application as filed (before the drawing was inserted) described a *heated plunger*. That there may be no doubt on the point, we quote from the original application as filed (p. 1246, Rec.):

"In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork."

The argument of petitioner, however, overlooks the fact that claim 1 of the re-issue was only allowed over the art after repeated rejections by the Primary Examiner. The prior art showing no invention is referred to at pages *infra*, 47-53 of the brief. Petitioner in order to obtain any patent at all voluntarily cancelled the description and claims for the preheating step. It is elementary and held by numerous decisions of this Court, typified by the case of *I. T. S. Rubber Co.* v. *Essex*, 272 U. S. page 429 that when an applicant for a patent cancels matter in the Patent Office he cannot in a suit for infringement have a construction of a claim which would include the cancelled matter.

Petitioner cited several cases on pages 24/5 of its brief to the effect that a belief in the scope of its issued claims excuses it for not claiming the preheating method sooner. This Court has held that such belief on the part of a patentee is no excuse.

Wollensak v. *Sargeant*, 151 U. S. 221 and cases cited;
McClain v. *Ortmayer*, 141 U. S. 419.

The case of *Radio Condenser Co.* v. *Coe*, Court of Appeals, District of Columbia, 75 F. R. (2d) 523, is to the same effect.

The record clearly shows that, as found by the Circuit Court of Appeals, (p. 1835/6, Rec.) respondent always used a cold cutting plunger (p. 216/7 and ~~280~~, Rec.). 282

Briefly stated, the evidence for respondent shows that in the latter part of December, 1924 and between January and March, 1925 it made and sold upwards of 300,000 caps with center spots secured by gutta percha. They were made on

what is known as a Clark-Johnson assembling machine, which is a machine covered by patent No. 1,134,031 found at page 1508/14, and is for fastening the cork cushion disc into the metal shell. Benno Cohn, secretary and production manager of respondent company and Charles H. Rasmussen its superintendent testified respectively that they removed from the old Clark-Johnson machine the device which had formerly been used for cutting out a paper collett (placed between the metal shell and the cork disc) and substituted therefor a device for cutting out the spots and preheated the metal shells with the cork discs therein before the center spot was applied, pages 208/10; 279/81, Record. The reason that only some 300,000 caps were made was that the Inecto Co., a manufacturer of hair dyes, for whom these caps were manufactured by respondent, decided that the gutta percha might be deleterious to the substance it used in its hair dye and went back to the style of cap respondent had previously made for it and has been making for it since, viz., a metal center spot flanged into the cork (pp. 182/3, Rec.) made like those shown in the Nielson patent (No. 1,195,392, Figs. 13 and 15, p. 1648, Rec.) ~~infra~~.

The officers of the Inecto Co. corroborated Cohn and Rasmussen on this point. Original bills from respondent to the Inecto Co. running from March, 1925 were produced and identified by officers of that company, pages 179/82, Record, Exhibits CC to GG, page 926; JJ to LL, pages 929/35. The people who sold the gutta percha to respondent and the people who furnished the tinfoil and mounted the gutta percha on it for making caps on the dates mentioned, were called and identified invoices for both foil and gutta percha dated December, 1924 and January, February and March, 1925, pages 153/5; 187/90; 191/5. The bills are in evidence, (Exs. OO to ZZ, pp. 939/~~99~~ 959 Rec.). Cohn and Rasmussen both testified that they used a cold plunger for cutting the center spot and never, at that time or any time subsequently used a heated plunger (p. 216/17 and 282, Rec.).

The District Court found as a fact that such caps were made and sold. The Court also said, page 1781, Rec.:

"it does show that the use of gutta percha and metal for spotting strips was known to the art."

The Court of Appeals, however, in reversing the District Court, on the question of infringement, said in its opinion, page 1835, Record:

> "the defendant does not infringe, for the defendant uses a cold cutting punch which positions the spot on a cork disc previously heated sufficiently to cause the spot to adhere while the cap is carried to the next stage, where a hot plunger applies heat and pressure."

While the Court of Appeals did not say anything about that prior use by defendant, it clearly adopted it and adopted the testimony of respondent's witnesses to the effect that respondent always used a cold cutting punch and never used the heated plunger shown, described and claimed in the "heated plunger patent" (Reissue 19,117).

POINT V.

Both of the method patents are invalid over the prior art.

Respondent has contended in both the lower courts from the beginning of the suit that both of the method patents are invalid over the prior art.

Respondent again urges in this Court the invalidity over the art of both of these method patents.

This Court held in the case of *Stelos* v. *Hosiery Motor-Mend Corp. et al.*, 295 U. S. 237 that the respondent as a ground for sustaining a judgment in its favor is entitled to reassert a defense made in, but not accepted by, the Court of Appeals and that respondent need not make a cross application for a writ for this purpose.

In any event the history of the art is vitally necessary as it is elementary that the claims of a patent must be construed in the light of the art shown by the record. In the case at bar, petitioner's whole case hinges largely upon the construction to be placed upon the claims in the re-issue patent as well as upon Patent No. 1,967,195.

The crown cap is a metal shell having a disk therein of either composition or natural cork. The Record shows that the metal shell with the cork disk and secured to the metal shell by means of a heat fusible adhesive subjected to heat and pressure were old as far back as the Painter Patent of 1892 No. 468,226, page 4, lines 11-108-128 (p. 1502, Rec.).

The patent to Painter No. 792,284 (p. 1234, Rec.) June 13th, 1905, p. 1, lines 11-47-56 and the patent to Wheeler No. 887,883 (p. 1216, Rec.) dated May 19th, 1908, shows the same thing.

Another patent to Painter No. 887,838 (p. 1227, Rec.) dated May 19, 1908 (cited as showing the state of the art) states at page 1, lines 16, *et seq.*,

> **"then properly heating the cap, gasket and said medium and meantime subjecting the whole to appropriate pressure and while still under such pressure, cooling the completed closure."**

The McManus patent No. 1,339,066 (p. 530, Rec.) (one of the patents upon which suit was brought and held invalid by the Circuit Court of Appeals over the art) states (p. 2, lines ~~220 to 225~~) that the method of securing the cork lining to the metal shell with a fusible binding material and heat and pressure is old. In fact, the District Court so found (p. 1771/2, Rec.).

It would seem obvious and not to amount to invention when the prior art shows the securing of a cork disk to a metal shell by a fusible binding medium with heat and pressure to apply the same method to applying a center spot to a cork disk. This is particularly so when it is considered that the Record shows that center spots *per se* secured by

some sort of adhesive were old long prior to the filing of the application of either of the patents in suit.

The British patent to Demuth No. 16,075 (p. 1628/30, Rec.) effective date July 8th, 1914 shows a crown type cap having a cork cushion disk and a center spot of metallic foil or light, thin liquid resisting material *cemented* to the central portion of the cushion disk.

The use of a metal foil or strip from which the spots are cut, coated with a heat fusible adhesive is concededly old. One of the patents included in the six upon which the suit was originally brought is a patent to Warth No. 1,899,782, the claims of which are for strip material from which center spots are cut. The District Court found this patent invalid over the art and petitioner conceded its invalidity by failing to appeal from the decree holding it invalid.

Yet as pointed out on pages 10/11 *supra* of the brief, the use of such a strip is the primary concept of the method covered by patent 1,788,260 (the original of the reissue.)

The patent to Alberti No. 1,199,026 dated Sept. 19th, 1916 (p. 1022, Rec.) states at lines 35 to 43, page 2 referring to the adhesive material.

> "or it may be carried by a layer of fibrous material that is to be interposed between the two disks * * *, the entire closure being put, if necessary, under pressure and heated, whereby the cementing medium is coagulated, holding thus the metallic disk in place."

Referring again to the McManus Patent No. 1,339,066 (held invalid) that patent states (p. 2, ll. 20 to 35) that the center spot is secured to the cork disk by the use of a fusible binding medium interposed between the cap and the disk **"and set in a manner to unite the parts by the application of heat and pressure simultaneously or successively."** (lines 33-35)

and ll 73-84

Warth, the patentee of both the patents in controversy, himself admits that the use of heat and pressure for securing a center spot to the cork disk or cushion by means of a thermoplastic adhesive is old.

Warth filed an application for patent on Bottle Caps on August 21st, 1926. The Serial No. was 130,631 and it is found at page 1731, Record. That application states (p. 1737):

> "This paper disk is then secured to the cork disk by means of a backing 16 of some elastic and adhesive tissue, e.g., gutta percha **by means of a heated plunger or the like.** By so applying heat and pressure to the assembled cork and paper disks, the gutta percha or like backing is rendered adhesive and the paper spot is firmly cemented to the cork. **In this connection, it is noted that apparatus for cutting and assembling spot centers is known in the art."**

The claims in that application 130,631 were directed to a bottle cap having a center spot secured by gutta percha. The claims were rejected on the art by the Primary Examiner. His action was affirmed by the Board of Appeals and the application became abandoned.

The application for patent No. 1,967,195 (the preheating patent) became involved in interference with Johnson patent No. 1,852,578 (Interference No. 66,201) referred to on page 36 *et seq., supra,* and the Examiner of Interference in a decision in that interference stated (p. 663, Rec.):

> "Attention has been called to the patents to McManus #1,402,780 and Alberti 1,401,300, showing machines for this purpose. In these machines the caps are passed intermittently in single file beneath a reciprocating punch, which cuts the metal foil disk from a strip and deposits it upon the cork pad. **The caps then pass to an immediately adjacent heated plunger which applies sufficient heat and pressure to complete the union.** It was agreed by both parties at the hearing that machines of this character were used commercially prior to 1927 and that they operated at high speed."

It may be noted here that, stripped of all technical terminology, the essence of the claims of both the patents in controversy are for a *method* only of cutting a center spot from

a strip of thermoplasticly coated material (concededly old) and sticking or adhering it to the cork disk by means of heat and pressure also concededly old and by apparatus also concededly old.

The re-issue or heated plunger patent describes and claims a method whereby the heat is supplied by the cutting plunger. The alleged divisional or preheating method patent obtains the heat necessary for initially adhering the spot by heating the cork first so as to obtain the necessary heat for sofening the gutta percha sufficiently to cause it to adhere and later applying heat and pressure.

In addition to the art we have referred to, petitioner itself produced a witness by the name of Goebel, its Plant Engineer and Superintendent, who produced drawings of and described a machine for putting center spots coated with gutta percha on cork disks in crown caps as far back as 1915 or 1916. This machine was termed the "slide machine". A drawing of it was produced (Ex. 43) (p. 612, Rec.) and put in evidence by petitioner (p. 370, Rec.). That machine concededly operated slowly, but, nevertheless, it showed two strips of a material, one of tin foil and the other of gutta percha, from which the center spots were cut out and applied by heat and pressure to the cork disk. In speaking of this machine, the Court of Appeals said (p. 1836, Rec.):

> "To read the claims of the re-issue patent to mean a cold punch to cut the spot and a hot plunger applied later to fasten it to the cork disk would make them invalid under the old slide machine * * *."

Petitioner in its brief criticizes this decision of the Court of Appeals and seeks to differentiate the old slide machine on the ground that it does not show the application of heat and pressure and has made an elaborate statement on page 41 of the appendix to its brief attempting to differentiate the machine. However, we think a complete answer to this description is found in petitioner's own Exhibit 44 (p. 613,

Rec.) from the head of petitioner's engineering department which states in part:

> "A crown has now come into position under the Plunger and Heater 'H' which has moved into position relative to applying the spot to the crown. This is accomplished by the action of the pump 'B', which on its return stroke blows the spot from its position in the Heater on to the Crown *which is then pressed on to the cork in the crown by the Heater Plunger.* This completes the cycle of operations necessary for applying the Tin Foil Spot to the assembled #1 Crown."

The District Court in discussing that slide machine said (p. 1790, Rec.):

> "The pressure of this heated punch caused the gutta percha to stick to the cork and also to the foil spot."

It is submitted that in view of the art and petitioner's slide machine there can be no invention in the claims of either of the two method patents involved in this appeal under the decisions of this Court in the following cases:

> *Altoona Theatres* v. *Tri-Ergon Corp.*, 294 U. S. 477;
> *Powers-Kennedy Contracting Corp.* v. *Concrete Mixing & Conveying Co.*, 282 U. S. 175;
> *Thomson Spot Welder Co.* v. *Ford Motor Co.*, 265 U. S. 445.

The Court's attention is directed to the fact that all the claims in the two patents in controversy are for a mere function of a machine and call for the method of applying heat and pressure to a center spot cut from a strip of adhesively coated material to cause the spot to adhere to the cork. No particular amount of heat and no particular amount of pressure is specified. It would seem as though the Court could take judicial notice of the well known fact that when it is desired to stick one material to another by means of gutta percha, the gutta percha must be softened by heat and pressed on to some material.

The patent to Farrell No. 1,358,834 (p. 1135, Rec.) issued November 16th, 1920 (p. 1, ll. 74-88) shows the use of gutta percha as an adhesive for use on strips of paper or tapes, etc. and the application of same by heat and pressure.

The whole proposition is really an apparatus or machinery proposition. The speed and rate of production of caps is governed by the machinery employed. The District Court found (p. 1791, Rec.):

> "The defendant's Cohn and Johnson machines are different from plaintiff's, but that machinery operates in accordance with the Warth method, and that defendant has not been able to equal plaintiff's high rate of production is no defense."

If the claims in the patents in controversy are sustained, then it will be impossible for anyone who constructs a greatly improved machine and gets an even higher rate of production than that obtained by petitioner's machines to use such improved apparatus.

It would seem that the following authorities holding that there can be no invention in the function of a machine are peculiarly applicable here.

Westinghouse v. *Boyden Power Brake Co.*, 170 U. S. 537 at pages 555-8;

DeForest Radio Co. v. *General Electric Co.*, 283 U. S. 664, pages 682-4;

E. Van Norden Co. v. *Cheney*, 75 Fed. 298 (C. C. A. 1) at page 302;

Directoplate v. *Donaldson Lith. Co.*, 51 F. R. (2d) 199.

IN CONCLUSION.

Petitioner's argument as to the validity of Patent No. 1,967,195, is based upon the rule announced in *Chapman* vs. *Wintroath*, as construed in *Webster* vs. *Splitdorf*, that a divisional application may be filed for the purpose of getting

into interference with a patent issued to a third party, at any time within two years of the issue of said adverse patent; and upon the contention that the claims contained in Patent No. 1,788,260, as issued, now reissue Patent No. 19,117, were of a scope to cover the matter claimed in the alleged division, No. 1,967,195, and if not that at least Warth believed they were, and was thus absolved from any imputation of laches.

As to Re-issue Patent 19,117, briefly, petitioner bases its claim of infringement upon the same contention, that it uses as an excuse for laches, namely that the claims cover the preheating step.

The complete answer to the argument is that in the *Chapman* and *Webster* cases and in all of the numerous decisions based thereon the parent patent had not issued, and the time within which to file a divisional application was computed from the date of the adverse patent and the subject of the inventions had not been cancelled. In the instant case the applications relied upon for continuity of disclosure were not true divisional applications as we have shown, *supra,* but that fact aside, the issuance of the parent patent makes applicable the strict rules in regard to re-issues rather than the more liberal rule in regard to divisional applications. Warth having waited more than two years to file his alleged second divisional application is confronted with the fact the parent application is a "printed publication" within the meaning of the statute. *Ludlum Steel Co.* vs. *Terry,* 37 Fed. (2) 153 at 165; *Milburn Co.* vs. *Davis,* 270 U. S. 390 at 402. Quite apart from authority it is obvious that the file wrapper of an allowed application being open to the public is notice of its contents.

The decision of the Circuit Court of Appeals should be affirmed on account of the foregoing and also for the following reasons:

1. Warth's conduct in voluntarily cancelling the preheating disclosure and claims broad enough to cover same from

his parent application and allowing the patent to issue without any reference to preheating before filing claims for the alleged invention in the later application amounts to abandonment in fact as found by the Court of Appeals.

2. His failure to take action to protect his alleged invention for more than four years after the purchase by Petitioner of machines from Johnson and more than two years after Respondent wrote to Petitioner concerning charges it was violating Petitioner's patent rights.

3. Because the two patents before the Court are completely void in view of the prior art.

4. As to non-infringement, the court below should be affirmed upon the grounds so concisely and cogently stated in its own opinion (Rec., pp. 1834-5).

Respectfully submitted,

WILLIAM E. WARLAND,
FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Counsel for Defendant-Respondent.

APPENDIX.

Patent Office Rules:

35. The specification must set forth the precise invention for which a patent is solicited, and explain the principle thereof, and the best mode in which the applicant has contemplated applying that principle, in such manner as to distinguish it from other inventions.

36. In case of a mere improvement, the specification must particularly point out the parts to which the improvement relates, and must by explicit language distinguish between what is old and what is claimed as new; and the description and the drawings, as well as the claims, should be confined to the specific improvement and such parts as necessarily cooperate with it.

37. The specification must conclude with a specific and distinct claim or claims of the part, improvement, or combination which the applicant regards as his invention or discovery.

41. Two or more independent inventions can not be claimed in one application; but where several distinct inventions are dependent upon each other and mutually contribute to produce a single result they may be claimed in one application; *Provided,* That more than one species of an invention, not to exceed three, may be claimed in one application if that application also includes an allowable claim generic to all the claimed species. In the first action on an application containing a generic claim or claims and claims to more than one species thereunder the examiner, if he is of the opinion after a complete search that no generic claim presented is allowable, shall require the applicant in his response to that action to elect that species of his invention to which his claims shall be restricted if no generic claim is finally held allowable.

43. When an applicant files two or more applications relating to the same subject matter of invention, all showing but only one claiming the same thing, the applications not claiming it must contain references to the application claiming it.

93. An interference is a proceeding instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention and may be instituted as soon as it is determined that common patentable subject matter is claimed in a plurality of applications or in an application and a patent. In order to ascertain whether any question of priority arises the Commissioner may call upon any junior applicant to state in writing under oath the date and the character of the earliest fact or act, susceptible of proof, which will be relied upon to establish conception of the invention under consideration. The sworn statement filed in compliance with this rule will be retained by the Patent Office separate from the application file and if an interference is declared will be opened simultaneously with the preliminary statement of the party filing the same. In case the junior applicant makes no reply within the time specified, not less than twenty days, the Commissioner will proceed upon the assumption that the said date is the date of the oath attached to the application. The fact that one of the parties has already obtained a patent will not prevent an interference, for, although the Commissioner has no power to cancel a patent, he may grant another patent for the same invention to a person who proves to be the prior inventor.

94. Interferences will be declared between applications by different parties for patent or for reissue when such applications contain claims for substantially the same invention which are allowable in the application of each party, and interferences will also be declared between applications for patent, or for re-issue, and unexpired original or re-issued patents, of different parties, when such applications and patents contain claims for substantially the same invention which are allowable in all of the applications involved: *Pro-*

vided, That where the filing date of any applicant is subsequent to the filing date of any patentee, the applicant shall file an affidavit that he made the invention in controversy before the filing date of the patentee.

Where claims are copied from a patent and the examiner is of the opinion that the applicant can make only some of the claims so copied, he shall notify the applicant to that effect, state why he is of the opinion he cannot make the other claims and state further that the interference will be promptly declared and that the applicant may proceed under rule 109, if he further desires to contest his right to make the claims not included in the declaration of the interference.

Where an applicant presents a claim copied or substantially copied from a patent, he must identify the patent, give the number of the patented claim, and specifically apply the terms of the copied claim to his own disclosure.

An amendment containing a claim copied from a patent granted more than two years prior to the filing of such amendment shall not be entered unless it be accompanied by a statement specifically pointing out the claim or claims upon which the applicant relies to show that he was claiming the subject matter of the copied claim or claims within two years from the date of the patent.

Parties owning applications or patents which contain conflicting claims will be required to show cause why these claims shall not be eliminated from all but one of the applications or patents of common ownership.

U. S. Revised Statutes:

Sec. 4899. (U. S. C., title 35; sec. 48.) Every person who purchases of the inventor or discoverer, or, with his knowledge and consent, constructs any newly invented or discovered machine, or other patentable article, prior to the application by the inventor or discoverer for a patent, or who sells or uses one so constructed, shall have the right to use, and vend to others to be used, the specific thing so made or purchased, without liability therefor.

Sec. 4916. (U. S. C., title 35, sec. 64.) Whenever any patent is wholly or partly inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a patent for the same invention, and in accordance with the corrected specification, to be reissued to the patentee or to his assigns or legal representatives, for the unexpired part of the term of the original patent. Such surrender shall take effect upon the issue of the re-issued patent, but in so far as the claims of the original and reissued patents are identical, such surrender shall not affect any action then pending nor abate any cause of action then existing, and the reissued patent to the extent that its claims are identical with the original patent shall constitute a continuation thereof and have effect continuously from the date of the original patent. The commissioner may, in his discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant, and upon payment of the required fee for a reissue for each of such reissued letters patent. The specifications and claims in every such case shall be subject to revision and restriction in the same manner as original applications are. Every patent so reissued, together with the corrected specifications, shall have the same effect and operation in law, on the trial of all actions for causes thereafter arising, as if the same had been originally filed in such corrected form; but no new matter shall be introduced into the specification, nor in the case of a machine patent shall the model or drawings be amended, except each by the other; but when there is neither model nor drawing, amendments may be made upon proof satisfactory to the commissioner that such new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake, as aforesaid.

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S
FILED
DEC 10 1937
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States,

OCTOBER TERM 1937.

No. 72

CROWN CORK & SEAL COMPANY, INC.,
Plaintiff-Petitioner,

v.

FERDINAND GUTMANN & CO.,
Defendant-Respondent.

SUPPLEMENTAL BRIEF FOR DEFENDANT-RESPONDENT.

WILLIAM E. WARLAND,
FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Counsel for Defendant-Respondent.

THE BALLOU PRESS NEW YORK

BLANK

PAGE

INDEX.

	PAGE
Abandonment	1-3
The application for 1,788,260, parent of the re-issue, has no disclosure to entitle Warth to an interference with the Johnson patent	3-7
Cases cited by Petitioner	7-8
The Warth-Johnson interference 66,201	8
Respondent is licensed to use the machines it bought from Johnson	8-10
Petitioner's discussion of the fact testimony	10-11
Prior art	11-13
Conclusion	13

Authorities.

Planing-Machine Co. vs. Keith, 101 U. S. 479	3
Rifle & Cartridge Co. vs. Whitney Arms Co., 118 U. S. 22	3

BLANK

PAGE

IN THE

Supreme Court of the United States,

OCTOBER TERM, 1937.

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Petitioner, v. FERDINAND GUTMANN & CO., Defendant-Respondent.	No. 72

SUPPLEMENTAL BRIEF FOR DEFENDANT-RESPONDENT.

Petitioner has filed two reply briefs, one directed to the case generally and one solely to the question of validity over the prior art. Petitioner has raised some new points therein not previously referred to in the case and respondent feels obliged to reply thereto briefly.

Abandonment.

Petitioner, on page 3 of its reply brief raises the point that the defense of abandonment was not pleaded in accordance with the statutes and therefore respondent cannot argue the point at this time.

In its numerous briefs before the District Court, the Circuit Court of Appeals, and in this Court in its briefs in support of the petition for the writ, and in its main brief on this argument Petitioner never raised this point, although the question of abandonment was distinctly raised and passed on by the District Court which said in its opinion in discussing the two patents in controversy (p. 1800, Rec.):

> "The subject matter was not abandoned, *as suggested by defendant,* but was specifically reserved by continuous inclusion in the divisional application and later in the second division."

The cases cited by petitioner* on page 3 of its brief to the effect that the rules of pleading require that the defense of abandonment must be pleaded before proof can be offered in support of it, were all concerned with cases in which the *invention* had been abandoned either before filing application for patent or by some failure to comply with the rules of the Patent Office during the course of the application, and none were concerned with a situation where an applicant either failed to assert any claim to subject matter of an application or deliberately cancelled such subject matter in order to obtain a patent.

The following language of the Court of Appeals (p. 1838, R.) in reference to the two patents involved in the case, at bar, while not specifically mentioning the word "abandonment" indicates that it considered Warth had in fact abandoned his preheating claims.

> "but, in the case at bar, for a period of more than two years Warth apparently did not wish to claim the preheating method, having deliberately cancelled the preheating specification from his original application and shaped his claims so as to exclude it and his patent having been granted January 6, 1931."

We think it is immaterial whether the act of Warth is termed an actual or constructive abandonment, or *laches* which amount to abandonment. We believe that the theory upon which this court decided the case of *Webster* v. *Splitdorf* was that the inventor in that case had been guilty of

---

* *Mast Foos & Co.* v. *Dempster,* (C. C. A. 8th) 82 F. 327; *Western Electric Co.* v. *Sperry Electric Co.,* (C. C. A. 7th) 58 Fed. 186, 192; *Warren Featherbone Co.* v. *Warner Bros. Co.,* (C. C. Conn.) 92 Fed. 990, 991; *U. S. Electric* v. *Consolidated,* (C. C. N. Y.) 33 Fed. 869, 871; *Abrahams* v. *Universal Wire Co.,* 10 F. (2d) 838, 842 (D. C. E. D. N. Y.).

such *laches* as to amount to abandonment. The Court of Appeals in this case, as we pointed out on page 9 of our main brief, said in the case of *Western Electric* v. *General Talking Pictures Co.* in speaking of the case at bar:

> "The patentee (Warth) had really abandoned the invention, and we said, 'might never have considered the subject worth claiming as an invention.'"

Abandonment is a question of intent and intent can only be proven by a man's acts. This court said in the case of *Planing-Machine Co.* v. *Keith*, 101 U. S. 479 at page 484:

> "It has sometimes been said that an invention cannot be held to have been abandoned, unless it was the intention of the inventor to abandon it. But this cannot be understood as meaning that such an intention must be expressed in words. In Kendall et al. v. Winsor (21 How. 322), this Court said, 'it is the unquestionable right of every inventor to confer gratuitously the benefits of his ingenuity upon the public, and this he may do either by express declaration or by conduct equally significant with language; such, for instance, as an acquiescence with full knowledge in the use of his invention by others; or he may forfeit his rights as an inventor by a wilful or negligent postponement of his claims. * * * but it is obvious there may be an abandonment as well after such an application has been made and rejected, or withdrawn, as before, and evidenced in the same manner.'"

Following that decision this court said in *Rifle and Cartridge Co.* v. *Whitney Arms Co.*, 118 U. S. 22:

> "The decision of the Commissioner in favor of the applicant, upon the question whether the invention has been abandoned, is not conclusive, but may be contested and reviewed in a suit brought for the infringement of the patent."

The application for patent 1,788,260 (parent of the reissue) filed Jan. 7th, 1927 had no disclosure to entitle Warth to have that application placed in interference with Johnson.

In answer to Petitioner's contention, page 20 its Reply Brief, attention is called to the following.

On page 5 of its main brief petitioner states:

> "The Warth generic method, as it would be carried out with this illustrated 'suitable mechanism,' is shown by the drawing opposite this page."

An inspection of that drawing shows:

> "Fourth step—Applying heat and pressure after placing spot."

Below that statement is shown a plunger heated by gas.

That "Fourth step" and the heated plunger for accomplishing it never appeared in the application for patent 1,788,260 (the parent of the reissue). It was not described in the specification of that original application. That original application as filed said nothing about "A fourth step" or "Applying heat and pressure after placing spot."

Attention is called to the drawing, which we have reproduced on the opposite page, of reissue 19,117 which is the same drawing that appears in the parent patent 1,788,260. There is nothing in the application for the original 1,788,260 referring to "Applying heat and pressure *after* placing spot."

The first time that the "Fourth step" in the drawing of petitioner's brief opposite page 5 ever appeared in the Patent Office was when Warth filed the alleged divisional application on April 4th, 1933, which resulted in Patent No. 1,967,195. Fig. 6 appeared **for the first time** in that application as filed. Patent 1,967,195, in describing that figure 6, says (p. 4, ll. 16 *et seq.*):

> "As hereinbefore stated, after the spot is positioned on the sealing pad heat and pressure may be applied, as by a plunger or a plunger and heated table. In Fig. 6 there is shown for this purpose a carrier i and a spring pressed plunger j. The plunger j is heated by gas jets, and thus the plunger serves as means for applying a continuing heat and pressure after the punching opera-

March 20, 1934. A. H. WARTH Re. 19,117

PROCESS OF PRODUCING CLOSURES

Original Filed Jan. 7, 1927

Fig. 1.

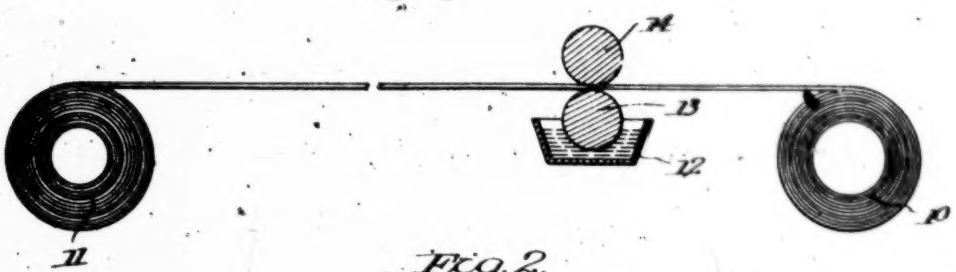


Fig. 2.

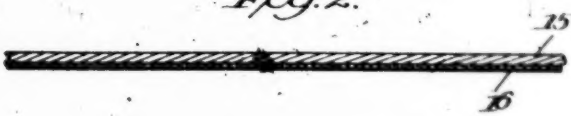


Fig. 3.

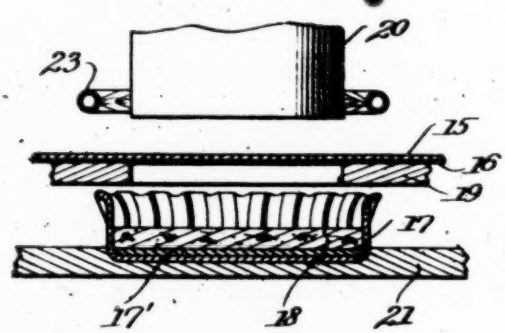


Fig. 4.

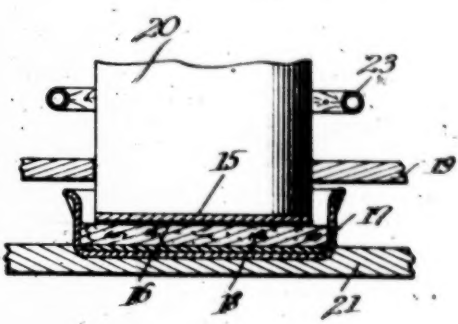


Fig. 5.

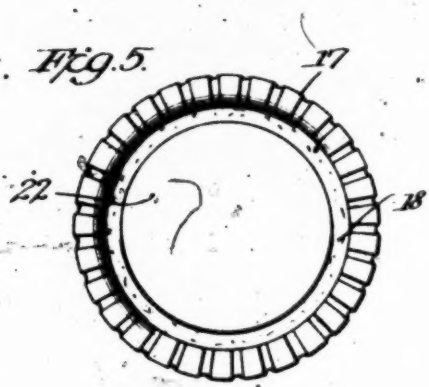
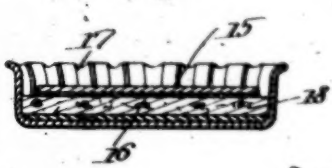


Fig. 6.



Inventor

Albin H. Warth.

By Cushman Bryant & Darby

BLANK

PAGE

tion to ensure complete fusion of the adhesive and a close adhesion of every portion of the disk 15 to the disk 18."

This matter was inserted by amendment filed June 21st, 1934 as a substitute for the following matter in the disclosure as filed:

"It is preferable after the disk 15 has been bonded to the cork disk 18, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta percha and a close adhesion of every portion of the disk 15 to the disk 18. For this purpose, I have shown (Figure 6) a carrier i and a spring pressed plunger j. In the drawings, I have shown the punch 20 and plunger j as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed." (p. 1438, Rec.)

No such disclosure appears in the application for the parent of the reissue, or in any of the intervening applications, viz. the strip material application, nor in either of the cap and method patents referred to in our main brief, so far as the record shows.

Obviously this additional figure and the statement we have quoted was put in for the sole purpose of justifying Warth in getting into interference with the Johnson patent. Unless he had in his application filed April 4, 1933 a means and description of applying heat and pressure after the spot was cut without the limitation of the temperature

"sufficient to fuse or soften the adhesive coating and make it tacky so that, *at the time the disk is assembled with the cap,* the heat and pressure will cause the disk to be adhesively united to the surface of the cushion material * * *." (Rec., p. 557, ll. 7 to 15.)

he would have had no disclosure for the expression in Claim 2, viz:

"and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads" (p. 557, ll, 123/6, Rec.).

and the expression in Claim 3:

> "then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads etc." (p. 557, ll. 138/42, Rec.).

As to claim 1 of patent 1,967,195 (claim 28 of the Johnson patent 1,852,578) the original application for patent 1,788,260 did not disclose in the specification or drawings a *cold cutting punch,* shown in the drawing opposite page 6, Petitioner's Brief.

This clearly shows that the alleged division 1,967,195 is not in any sense a proper division of either 159,743, the application for the parent of the reissue, nor is it a proper division of the strip material patent 494,201 because it has matter which was not shown or described in either, and it was for a step not set forth in either the patent or the application.

This new and additional step called for in application for patent 1,967,195, the preheating patent, and illustrated in said sketch opposite pages 5/6 of Petitioner's main Brief, is supplemental to the attachment of the center spot to the disc by the simultaneous application of heat and pressure immediately following the cutting of the disc from the strip material and by the same agency. In this connection the Court's attention is also directed to the drawing opposite page 6 in Petitioner's main Brief in which it is noted that the number and relation of parts is the same as in the other sketch opposite page 5 with the following exceptions:

A burner is shown for heating the discs as they approach the dies for cutting the spot from the strip material and the plunger of the cutting die is shown as being without heat of any kind which also is foreign to any disclosure made by Warth either in his application for patent No. 1,788,260 (Reissue 19,117) or in any other application of record. The court is most earnestly urged to compare the drawings of the reissue patent 19,117 appearing opposite this page and

the two drawings opposite pages 5 and 6 respectively of Petitioner's main Brief.

The practice followed by Warth in this case is on all fours with that referred to by this court in *Coan* vs. *Wilson*, 113 U. S. 268, cited at page 41 of our main brief in that after Warth had knowledge of the Johnson patent, he deliberately filed his alleged divisional application including matter which would enable him to insert claims covering the Johnson invention notwithstanding that this matter never appeared in any of his prior applications. **In connection with petitioner's insistence that no interference was declared between the Johnson patent and the Warth application on appeal, it is obvious that Warth was never entitled to make the claims of the Johnson patent until he filed the application for the preheating patent 1,967,195, in April, 1933 showing the additional matter supporting such claims.**

It is apparent that the matter on the drawing opposite page 5/6 of Petitioner's main brief have no support in either the application for the reissue or the preheating application of April 4th, 1933.

Consequently when the Examiner made his interference search before the issue of the Johnson patent there were not only **no claims** conflicting with Johnson's claims (as pointed out on p. 23/4 of our main brief) but there was **no disclosure** in any of Warth's various applications which would support such claims.

Cases Cited By Petitioner.

A careful reading of the cases cited by petitioner (pp. 10-23) on the questions of divisional applications, continuing applications, publication, reissues and other points relevant to the prosecution of an application through the Patent Office, having in mind the difference between the facts disclosed in each and the facts in the case at bar, shows that they in no way affect the position taken by respondent upon those points in its briefs previously filed herein.

Furthermore, in the opinion of counsel, it has been shown so conclusively that application Ser. No. 494,201, and the application for Patent No. 1,967,195, were not, and could not be, true divisions of Patent No. 1,788,260 that it is unnecessary to further consider the cases on the points mentioned.

Warth-Johnson Interference 66201.

Petitioner (Reply Br., p. 34) cites *Chillis* vs. *Weisberg*, 1928 C. D. 24 and argues that respondent did not attempt to offer evidence showing invention by Johnson prior to the filing date of the Warth application for Patent No. 1,788,260. The attention of the Court has been heretofore called to the fact that there is no disclosure in this application even as originally filed corresponding with the disclosure of the Johnson application.

Johnson assigned his patent to petitioner in December, 1933 and received at the time of said transfer from petitioner a license to manufacture the apparatus of that patent. This would seem to be a complete refutation of the claim that this assignment was ever put in escrow. The original assignment contains no reference to any escrow agreement, but was an absolute transfer.

There is nothing of record in the Patent Office to show that in determining the Warth-Johnson interference the Examiner of Interferences had any knowledge of this assignment and up to the time of the trial the assignment was never placed on record in the Patent Office (p. 440, Rec.).

Respondent is licensed to use the machines it bought from Johnson.

It is stated that petitioner is not clear as to the license right of respondent to use the Johnson machines (p. 35, Petr's. Reply Br.). Respondent therefore restates the conditions resulting in this license. Johnson invented a certain machine for applying the center spots to crown caps and

later took out a patent upon that machine which patent contained 27 apparatus claims and the 3 method claims in suit. Both before and after the filing of the Johnson patent and before and after the granting of said patent respondent purchased machines from Johnson, the inventor and legal owner of the apparatus and of the patent, and under the statute and under elementary law as to patents thereby became vested with the right to use these machines. Petitioner does not dispute that Johnson was the inventor and the lawful owner of the patent for such *apparatus*. Petitioner later purchased from Johnson his patent covering such apparatus. It would seem obvious that Johnson could not bring any proceeding against respondent for the use of those machines. It would seem equally obvious that petitioner having acquired title to the Johnson patent by purchase could not proceed against respondent for the use of Johnson's machines since it could get no greater rights than Johnson had. After purchasing the patent from Johnson petitioner granted Johnson an *unrestricted* license to manufacture the apparatus of that patent. Today Johnson alone or joined with petitioner could not bring an action against respondent for the use of such apparatus. The whole difficulty arises because of the interference proceeding referred to at pages 36/37, main brief, by which Warth obtained the patent upon the claims covering the functioning of the Johnson apparatus, although actually Warth was not the inventor of that apparatus, but Johnson was. And when everything is said and done, the three method claims of Johnson which became the three method claims of the Warth patent 1,967,195 call for nothing except the functioning of the Johnson apparatus.

Petitioner on page 36 of its reply brief, refers to the case of *Hartford Empire Co.* vs. *Nivison-Weiskopf Co.*, 58 Fed. (2) 701 and says:

"The facts were the same as in the case at bar."

An inspection of the cited case shows it has not the slightest application and the facts are not even remotely analogous

to the facts in the case at bar. In the case at bar, respondent purchased the machines from *Johnson*. That is not denied either in the main or reply brief of petitioner. In the case at bar, petitioner, after the institution of the alleged interference with Johnson, purchased the Johnson patent with the 27 apparatus claims and the Johnson patent had the three method claims in controversy.

The Court said in the *Hartford Empire Co.* case, at pages 705/6:

> "It is, however, equally true that the purchase of the Miller applications by the plaintiff did not give the defendant, as licensee of Miller, any license to *other patents or applications outstanding*, and the suit here in question is upon a patent in *which Miller had no property interest* and which, rightly or wrongly, was held in the Patent Office to take precedence over the Miller applications."

The difference between the *Hartford* case and the case at bar is that in the case at bar respondent is licensed under the statute and the decisions of this Court mentioned on page 36 of our main brief, to use the apparatus described and claimed in the Johnson application and patent which petitioner purchased, with full knowledge of defendant's use of the same, and the claims of that patent purchased by petitioner are the ones in controversy. In the cited case an attempt was made to establish a license from Miller to the use of a feeder in which Miller had no legal rights. In the present case Johnson was the legal owner of a patent covering the apparatus used by respondent and the plaintiff purchased that patent from Johnson.

Petitioner's Discussion of the Fact Testimony.

Petitioner on pages 28 *et seq.* of its reply brief discusses the testimony of Cohn in reference to Exhibit Q. We think a fair reading of that testimony shows that what Cohn was saying was that the machine in which he afterwards com-

bined the spot and cork in one operation was the same kind as Exhibit Q. Petitioner refers to Cohn's answers to petitioner's interrogatories. It overlooks, however, the fact that the answers to interrogatories by respondent on page 44 of the record show that respondent had always used the preheating method shown by the Johnson patent.

In addition to that we refer to the evidence found on page 209, Qs. 44/5; page 254, XQs. 423/9; page 281. Particular attention is called to the answer to XQs. 486/7, pages 260/61 Record.

In connection with the purchase of the five machines by petitioner from Johnson in 1929, petitioner on page 32 of its reply brief again intimates that petitioner gave instructions to Johnson to build these machines. The evidence is quite to the contrary. There is not a word from any of the witnesses for petitioner to that effect. Petitioner's witness Goebel said, (p. 413, Rec.) in answer to XQ369:

> "A: We *bought* a couple of spotting machines from Johnson to be sent to our Toronto plant and we took them to our Highlandtown plant to ascertain that they would operate and run. * * *"

He said in answer to XQ373 that he did not know there were five. He only knew of two. Goebel was the building engineer on all production machinery and acquisition and maintenance of production machines (p. 366 Rec.).

Furthermore, on page 900 Record, there is a letter from Johnson to petitioner stating that petitioner would have to pay the freight. That is entirely inconsistent with petitioner's argument that these machines were built on special order by Johnson for petitioner.

Prior Art.

The petitioner has filed a lengthy supplemental brief on the question of the art relating to center spot crowns.

In reply to that brief, it is merely desired to state that center spot crowns of the type referred to in the two patents before the Court were admittedly manufactured and sold by petitioner, or its immediate predecessor, continuously from 1917 (pp. 1589/91 Rec.) to the time of the suit, and that these caps had a cushion disc and a metal foil spot accurately centered in relation to the cushion disc and bonded thereto by means of gutta-percha tissue.

It is conceded that gutta-percha tissue is a thermo-plastic or heat fusible material and the Court found (p. 1790 Rec.) that heat and pressure were used in the operation of the slide machine to fuse the gutta-percha and cause the center spot to adhere to the cushion disc by pressure from a heated plunger, placing the spot upon the cushion disk. This same procedure was also disclosed in the "apparatus for cutting and assembling spot centers" referred to in Warth's abandoned application (p. 1737, Rec.).

The patents of Warth directed to such a center spot crown were held to be invalid by both the District Court and the Circuit Court of Appeals, 2nd Circuit (pp. 1831/2 Rec.).

Strip material coated with gutta-percha as an adhesive, made the subject matter of another patent in suit, was used by defendant in the early part of 1925 (p. 1781 Rec.), and the Court held that Warth was not the inventor of such strip material. In view of the above, it is submitted that a detailed discussion of prior art patents further than that set forth in our main brief (pp. 47/53) is not enlightening and therefore respondent refrains from any further discussion thereof.

At this point, however, we repeat that it is obvious that Warth's alleged invention, if any, was for a mere functioning of a machine, and was not a proper method. As shown above the use of heat and pressure *per se*, in applying spots was old. The "process could be performed by hand or by different mechanisms." *Michigan Carton Co.* vs. *Sutherland Paper Co.*, 29 F. (2) 179, quoted at page 19

Petitioner's Supplemental Brief. The high rate of production and great commercial success claimed by petitioner were due to the improved *mechanism* used in practicing the old and well known method. In other words the machine was new, but the article and method were old.

IN CONCLUSION.

It is submitted that the decree of the Circuit Court of Appeals as to both patents should be affirmed.

Respectfully,

WILLIAM E. WARLAND,
FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Counsel for Defendant-Respondent.

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S.
FILED
MAY 23 1938
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM 1937.

No. 72.

CROWN CORK & SEAL CO., INC.,
Plaintiff-Petitioner,

vs.

FERDINAND GUTMANN & COMPANY,
Defendant-Respondent.

NOTICE OF MOTION AND MOTION TO AMEND JUDGMENT.

WILLIAM E. WARLAND,
FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Counsel for Defendant-Respondent.

BLANK

PAGE

Notice of Motion.

IN THE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM 1937.

CROWN CORK & SEAL CO., INC., Plaintiff-Petitioner, vs. FERDINAND GUTMANN & COMPANY, Defendant-Respondent.	No. 72.

To Thomas G. Haight, George F. Scull, John J. Darby, and George W. Porter,
Counsel for Plaintiff-Petitioner.

PLEASE TAKE NOTICE that on the 23rd day of May, 1938, at the opening of Court on said day or as soon thereafter as counsel can be heard, a motion to amend the judgment in the above entitled cause to provide that the costs in this Court shall abide the final result of the litigation herein, will be submitted to the Supreme Court of the United States.

A printed copy of the motion is served upon you herewith.

WILLIAM E. WARLAND.
FRANCIS H. WARLAND,
NATHANIEL L. LEEK.
Counsel for Defendant-Respondent.

Service accepted this
day of May, 1938.

.....
Of counsel for Plaintiff-Petitioner.

IN THE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM 1937.

CROWN CORK & SEAL CO., INC., Plaintiff-Petitioner, vs. FERDINAND GUTMANN & COMPANY, Defendant-Respondent.	No. 72.

Now comes the respondent by its counsel and moves that the judgment of this Court provide that the costs in this Court abide the decision of the U. S. Circuit Court of Appeals for the Second Circuit of the issues in the case not heretofore passed upon, in accordance with the opinion of this Court, for the following reasons:

That the decision of this Court dated May 2nd, 1938 was limited to one of the specific questions presented by the Writ of Certiorari and the petition therefor, and the decision states at the end thereof:

> "As our decision is limited to the first question presented, the judgment of the Circuit Court of Appeals will be reversed and the case will be remanded to that Court for decision of the other issues in the case in accordance with this opinion."

The suit is one to restrain the alleged infringement of six patents. In the Courts below four of these patents were held invalid and the plaintiff-petitioner has acquiesced in said holding. In regard to one patent, Reissue 19,117, the Circuit Court of Appeals held the defendant did not infringe.

That Court held the remaining patent, Warth divisional No. 1,967,195 invalid for delay on the part of the patentee

in filing and prosecuting the same. A writ of Certiorari was granted by this Court to review the decision of the Circuit Court of Appeals.

The sole question passed upon by this Court concerned the divisional patent 1,967,195:

> 1. "Does this Court's decision in Webster Co. v. Splitdorf Co. (264 U. S. 463) mean that, even in the absence of intervening adverse rights, an excuse must be shown for a lapse of more than two years in presenting claims in a divisional application regularly filed and prosecuted in accordance with patent office rules"?

Opinion of this court herein dated May 2, 1938.

When the case was argued in the Circuit Court of Appeals for the Second Circuit there were presented to that Court in addition to the question of the delay in filing the divisional application, the question of validity of that patent over the prior art as well as of the other patents, intervening rights, the prior use by both plaintiff and defendant of the method set forth in the two patents which were before this Court; the question of whether respondent was entitled to a license under the Johnson patent, and the validity of the interference proceeding No. 66,201.

In regard to the divisional application, the Circuit Court of Appeals passed only on the question of the delay of the patentee Warth in filing and made no finding upon, and there was no reference in its opinion to the other questions above stated. In view of the direction of this Court contained in the language previously quoted, it now becomes necessary for the Circuit Court of Appeals to pass upon the questions presented by the defenses hereinbefore referred to and it may well be that the defendant in the action may ultimately prevail although unsuccessful upon the Certiorari to this Court. If such should be the case, it would seem inequitable that defendant-respondent should have to pay the costs in this Court, irrespective of the ultimate outcome of the

litigation, merely because said plaintiff-petitioner had been successful in regard to what would then have become an abstract question of law.

The position of the parties is similar to a case in which an unsuccessful party takes an appeal and a new trial is ordered. In such cases the ultimately prevailing party is usually entitled to recover all costs. Such is the rule in New York State where this litigation arose and we understand that in this regard it is the practice of the Federal Courts to follow that of the State Courts.

Ex parte Peterson, 253, U. S. 300 at 317.

In New York State Appellate Courts frequently direct that "costs shall abide the event".

11 Carmody's New York Practice, pages 388-89 and New York cases therein cited.

On the general proposition that only a completely successful party in patent litigation may recover costs, see *Sessions* v. *Romadka,* 145 U. S. 29 at 41; *O'Reilly* v. *Morse,* 15 How. 62 at 120 (dealing with U. S. R. S. Sects. 4920 and 4922), and *General Motors Corp.* v. *Leer Auto Supply Co.,* 60 F. (2d) 902; *Suddard* v. *American Motor Co.,* 163 F. 852.

The *opinion* of this court in the case at Bar is silent upon the question of costs, but we are informed by the Clerk that in the absence of a provision to the contrary, costs will be taxed in favor of the plaintiff-petitioner who obtained a "reversal". If it were not for the foregoing, we should assume that pursuant to sub-division 3 of Rule 32 of this Court, the court below would have power to make an award of the costs in this court. We respectfully submit that under the circumstances of this case the defendant-respondent should be awarded costs if ultimately successful and in order to pre-

vent any difficulty arising in regard thereto, ask that the mandate be amended to provide that the costs in this court abide the event of the litigation.

Dated New York, May 16, 1938.

Respectfully submitted,

WILLIAM E. WARLAND,
FRANCIS H. WARLAND,
NATHANIEL L. LEEK.

Counsel for Defendant-Respondent.

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S.
FILED
MAY 26 1938
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States,

OCTOBER TERM 1937.

No. 72.

CROWN CORK & SEAL CO., INC.,
Plaintiff-Petitioner,

vs.

FERDINAND GUTMANN & COMPANY,
Defendant-Respondent.

REPLY MEMORANDUM FOR DEFENDANT-RESPONDENT ON MOTION TO AMEND JUDGMENT.

WILLIAM E. WARLAND,
FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Counsel for Defendant-Respondent.

BLANK

PAGE

IN THE

Supreme Court of the United States

OCTOBER TERM, 1937.

CROWN CORK & SEAL CO., INC., Plaintiff-Petitioner, vs. FERDINAND GUTMANN & COMPANY, Defendant-Respondent.	No. 72.

REPLY MEMORANDUM FOR DEFENDANT-RESPONDENT ON MOTION TO AMEND JUDGMENT.

It is not necessary to discuss the authorities cited by petitioner other than to say that a careful examination of those cases shows that no one of them presents a question exactly like that presented by the record in this case.

Rule 32 of this court provides (Sub-Division 3):

> "In cases of reversal of any judgment or decree by this court, costs shall be allowed to the appellant or petitioner, *unless otherwise ordered by the court.*"

We would not file this memorandum were it not for the statements on pages 4 and 5 of petitioner-appellant's brief and the affidavit and letter annexed thereto which state that the large size of the record is due to the fact that counsel for defendant-respondent refused to agree to have less than the entire record reproduced.

It is quite true, as stated in the affidavit of Mr. Pawling that Mr. Warland desired to have the entire transcript of record reproduced. The affidavit, however, does not state that prior to the refusal, Mr. Warland had several telephone conversations not only with Mr. Pawling, but also with Mr. Darby in Washington looking toward a possible reduction

of the record. It was agreed after those conversations that the testimony of the various witnesses for both sides and many of the exhibits relevant to the two patents before this Court were so inextricably commingled with the other four patents that were not involved in the questions presented by the application for the writ, that it would be impossible to make an intelligible record before the case was reached for argument. The writ of certiorari was granted on Oct. 11, 1937. The hearing was set for the latter part of November and by agreement of counsel it was set over until December 6th.

Rule 10 of this court provides that it shall be the duty of appellant to file a praecipe indicating the portions of the record to be incorporated into the transcript. No such praecipe was filed by plaintiff-respondent nor even a letter written suggesting what, if any, portions of the record should be eliminated.

The rules provide a method by which appellant can enforce the printing of a proper record if the appellee objects to the praecipe. Equity Rule 75 as amended May 31, 1932.

It is submitted that, if counsel for petitioner-appellant had desired to have the record reduced, it was his duty to submit the praecipe required by the rules, and having failed to do so, he cannot cast upon counsel for the defendant-appellee the onus of presenting an alleged unnecessarily large record to this Court.

It is submitted that for the reasons pointed out in the motion filed by the defendant-respondent the motion should be granted.

Dated, New York, May 25th, 1938.

Respectfully submitted,

WILLIAM E. WARLAND,
FRANCIS H. WARLAND,
NATHANIEL L. LEEK,
Counsel for Defendant-Respondent.

BLANK

PAGE

BLANK

PAGE

FILE COPY

Office - Supreme Court, U. S.
MAY 23 1938
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM, 1937.

No. 72.

CROWN CORK & SEAL CO., INC., *Plaintiff-Petitioner,*

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent.*

OPPOSITION TO RESPONDENT'S MOTION TO AMEND JUDGMENT.

THOMAS G. HAIGHT
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Plaintiff-Petitioner.

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

BLANK

PAGE

IN THE

Supreme Court of the United States

OCTOBER TERM, 1937.

No. 72.

CROWN CORK & SEAL CO., INC., *Plaintiff-Petitioner,*

v.

FERDINAND GUTMANN & COMPANY, *Defendant-Respondent.*

OPPOSITION TO RESPONDENT'S MOTION TO AMEND JUDGMENT.

Petitioner opposes the Motion to Amend Judgment in this case and submits that it should be denied.

The case came before this Court on writ of certiorari to the Circuit Court of Appeals for the Second Circuit, which had held the Warth divisional patent No. 1,967,195 invalid for laches.

This Court held that there was no laches and reversed the judgment.

In accordance with Rule 32, paragraph 3,[1] of this Court and long established practice, the costs were awarded to petitioner in the decree of this Court dated May 2, 1938.

---

[1] Rule 32, Par. 3:

"In cases of reversal of any judgment or decree by this court, costs shall be allowed to the appellant or petitioner, unless otherwise ordered by the court. The cost of the transcript of the record from the court below shall be a part of such costs, and be taxable in that court as costs in the case."

Substantially the same rule has been in effect since 1838. See the discussion of the rule history in *St. Louis et al.* v. *Spiller*, 275 U. S. 156, 159-160.

During all of the years that this rule has been in force, it has been the practice of this Court to award costs to the appellant or petitioner who obtains a reversal. So far as counsel for petitioner have been able to ascertain, the only instances in which the Court has availed itself of the clause "unless otherwise ordered by the Court" (Rule 32) are cases where there has been an affirmance in part and a reversal in part. This case does not present that question, since here the reversal was complete.

Requesting an exception to the general rule, respondent asserts: (a) it may eventually prevail in the lower court on issues not there decided or here reversed, and, (b) in the lower courts only a completely successful party may recover costs.

The Final Outcome of the Case is Not Material to the Award of Costs in this Court.

As early as 1842, this Court in *Bradstreet* v. *Potter*, 41 U. S. (16 Pet.) 317, 318, 10 L. Ed. 978, 979, awarded costs to the petitioner upon reversal of the lower court where there remained issues to be decided by the lower court, which issues had not properly been brought before the Supreme Court. A question presented was as to whether the defendant in error should be subjected to costs if no judgment was given by this Court on the merits of the cause. After refusing to decide the merits of the case, the Court said:

> "In respect to costs upon cases brought to this Court, the rule is, as may be seen in the forty-seventh rule of the Court prefaced to 8 Peter's Reports, that in all cases of reversals of any judgment or decree in this Court, except where the reversal shall be for want of jurisdiction, costs shall be allowed in this Court for

the plaintiff in error, or appellant, as the case may be, unless otherwise ordered by the Court.

"The question as to costs in the Circuit Court is not before us."

In *Baldwin* v. *Ely*, 9 How. 580, 602, 13 L. Ed. 266, 275, this Court reversed a decree of the Circuit Court and remanded the case with directions as to further procedure in conformance with the opinion. In view of the facts of the case, the Court held that the appellee was entitled to his costs in the Circuit Court, stating however:

> "But as regards the costs in this Court, the appellant, by the established rules and practice of the Court, is entitled to recover them, and they must be charged against the appellee."

In both of the above cited cases, this Court was fully aware that further proceedings were to be had in the lower courts but made it clear that costs in this Court and costs in the lower court are independent questions.

Aside from the plain language of the rule, the award of costs to petitioner is pursuant to the mandatory provision of statute[2] insofar as the printing of the record is concerned. The printing of the record in the case at bar is the principal item of expense. This Court has repeatedly recognized the force of the statute quoted footnote *infra*.

Indianapolis & St. Louis Railroad Co. v. *Vance*, 96 U. S. 594, 595, 24 L. Ed. 825.
Fairmont Creamery Company v. *State of Minnesota*, 275 U. S. 70, 77.

---

[2] U. S. C., Title 28, Section 352 (Judicial Code Section 254):

"There shall be taxed against the losing party in each and every cause pending in the Supreme Court, the cost of printing the record in such case, except when the judgment is against the United States."

There Should Be No Exception to the General Rule Because of Respondent's Insistance Upon Printing Irrelevant Portions of the Record.

As the motion admits, the only portion of the Circuit Court of Appeals' decision which this Court was asked to review related to the Warth Reissue Patent 19,117 and the divisional patent No. 1,967,195.

The record related to five other patents and it became necessary to reprint the same for use in this Court. Petitioner therefore proposed to respondent that all parts not pertinent to the petition for certiorari be eliminated. Respondent refused, as shown by the affidavit of petitioner's counsel reproduced in the appendix and filed with the clerk.

Thus the major portion of the record constituting three volumes of 1843 pages was irrelevant to the issues petitioner presented.

Under such circumstances respondent has no equities which invite an exception to the general rule.

The obligation of a party in respondent's position to bear the costs of unnecessary printing has been recognized by this Court.

In *The Ball and Socket Fastener Company* v. *Kractzer*, 150 U. S. 111, 118, 37 L. Ed. 1019, 1021, the Court said:

> "We are, therefore, of opinion that the court below committed no error in its disposition of the case; but in view of the fact that the appellee has seen fit to encumber the record with copies of some fifty immaterial patents, we think it a proper case for the application of the 10th Rule,[3] which authorizes us (¶ 9) to impose costs upon an appellee guilty of requiring unnecessary parts of the record to be printed, and that he should be charged with half the cost of printing the record in this case. 'Care should be taken that costs are not unnecessarily increased by incorporating useless papers, and that the case is presented fairly and intelligently.' *Union Pac. R. Co.* v. *Stewart*, 95 U. S. 279, 284 (24: 431, 432). With this qualification the decree is affirmed."

[3] The rule referred to in the decision corresponds substantially to present Rule 13 (9).

Again in *Stevens* v. *White City*, 285 U. S. 195, 204, 76 L. Ed. 699, 704, where the Court, on certiorari, affirmed the decision of the Court below, the opinion states:

> "We find that respondent caused unnecessary parts of the record to be printed amounting in all to 186 pages. This is admitted in a statement filed by counsel for respondent. The cost of such printing will be charged to respondent. Rule 13, ¶ 9".

In view of the Court's admonition against unnecessarily increasing the cost, it is submitted that the circumstances of this case did not warrant a request on the part of the respondent for an exception to the rule that costs should be awarded to a petitioner where a reversal is obtained.

Respondent's Reference to the Practice in the State Courts is Irrelevant.

Respondent asserts that the New York State Appellate Courts frequently direct that costs shall abide the event and that "it is the practice of the federal courts to follow that of the state courts." This assertion is beside the point here presented. In any event, the decisions cited below show that the *federal* courts, including the Circuit Court of Appeals for the Second Circuit, award costs incurred with respect to an appeal regardless of the final outcome.

Land Oberoesterreich v. *Gude*, (C. C. A. 2nd), 93 F. 2nd, 292, 293.
Berthold v. *Burton*, (C. C. S. D. N. Y.), 169 Fed. Rep. 495, 496.
Jennings v. *Burton*, (C. C. S. D. N. Y.) 177 Fed. Rep. 603.
Miller v. *Hartwell Co.*, (C. C. A. 5th) 271 Fed. Rep. 385, 390.
Bailey v. *Mississippi Home Telephone Co.*, (D. C. M. D. Penn.) 254 Fed. Rep. 358.

It is to be noted that in the *Land Oberoesterreich case* (*supra*) the Court of Appeals for the Second Circuit or-

dered a new trial, yet awarded costs regardless of the final outcome.

Respondent asserts (Motion p. 4) that the position of the parties in the case at bar "is similar to a case in which an unsuccessful party takes an appeal and a new trial is ordered." Even accepting respondent's own assertion, the *Land Oberoesterreich* case shows that in accordance with the practice of the federal courts petitioner is entitled to costs without regard to the final outcome.

We find nothing in the patent cases cited by respondent (Motion p. 4) having any bearing on the question presented by the motion.

Respectfully submitted,

THOMAS G. HAIGHT
GEORGE F. SCULL,
JOHN J. DARBY,
GEORGE W. PORTER,
Counsel for Plaintiff-Petitioner.

APPENDIX.

Affidavit of Walter A. Pauling.

STATE OF NEW YORK }
COUNTY OF NEW YORK } ss:

WALTER A. PAULING being duly sworn deposes and says that he is an attorney associated with the firm of Gifford, Scull & Burgess solicitors for the Crown Cork & Seal Co., Inc., the plaintiff-petitioner; that on or about October 11, 1937 after the grant of the petition for writ of certiorari and when it became necessary to print the transcript of record for filing and use in this Court, deponent, in a telephone conversation with Wm. E. Warland, Esq., counsel for the defendant-respondent, requested Mr. Warland to stipulate to eliminate all parts of the record not pertinent to the issues raised by plaintiff's petition for certiorari; that Mr. Warland stated that he would not agree to eliminate anything but desired to have the entire transcript of record reproduced; that, to confirm the conversation and understanding, a letter, of which the annexed is a copy, was sent to Mr. Warland on October 22nd, 1937.

WALTER A. PAULING.

Subscribed and sworn to before me this 18th day of May, 1938.

AGNES E. CONNEEN,
Notary Public.

Copy.

October 22, 1937

William E. Warland, Esq.,
Hauff & Warland,
41 Park Row,
New York, N. Y.

My dear Mr. Warland:

CROWN CORK & SEAL v. GUTMANN

This is to confirm the understanding reached between you and our Mr. Pauling as to the record in the Supreme Court in the above.

We proposed to you that in reproducing the record for the Supreme Court, all parts thereof not pertinent to the issues before the Supreme Court should be eliminated from the record by stipulation but you decided that you wanted the entire record reproduced.

Accordingly the Clerk has been instructed to reproduce the entire record before the Court of Appeals.

Yours very truly,

GEORGE F. SCULL (Signed)

GFS*C

P.3

SUPREME COURT OF THE UNITED STATES.

No. 72.—October Term, 1937.

Crown Cork & Seal Company, Inc., Petitioner, *vs.* Ferdinand Gutmann Co., Inc.	On Writ of Certiorari to the United States Circuit Court of Appeals for the Second Circuit.

[May 2, 1938.]

Mr. Justice Butler delivered the opinion of the Court.

Petitioner sued respondent in the district court for eastern New York to enjoin infringements of patents, two of which are here involved. One is Warth Reissue Patent, No. 19,117, dated March 20, 1934. The other is Warth Patent, No. 1,967,195, dated July 17, 1934, a divisional patent. Both relate to methods for applying small disks of paper or foil, known as center spots, to cork cushions of crown caps. These caps are used to seal bottles containing pressure beverages. The center spot prevents contact of the liquid with the cork. The district court adjudged both patents valid and infringed. 14 F. Supp. 255. The circuit court of appeals reversed, holding the reissue patent not infringed and the divisional one invalid because of laches in filing the application on which it was granted. 86 F. (2d) 698.

The questions presented by the petition for the writ, granted — U. S. —, are these:

1. "Does this Court's decision in *Webster Co.* v. *Splitdorf Co.* [264 U. S. 463] mean that, even in the absence of intervening adverse rights, an excuse must be shown for a lapse of more than two years in presenting claims in a divisional application regularly filed and prosecuted in accordance with patent office rules"?

2. "Where there has been more than two years delay in asserting specific claims in a divisional application, is it an excuse for the delay that there were claims in the parent patent which, on their face, covered and were reasonably believed to cover, the subject-matter of the divisional claims, even if a Court later interpreted the parent patent claims not to cover such subject-matter?"

Our consideration of the case will be limited to these questions. *Washington Coach Co.* v. *Labor Bd.*, 301 U. S. 142, 146. *Morehead* v. *N. Y. ex rel. Tipaldo*, 298 U. S. 587, 604, 605. *Clark* v. *Williard*, 294 U. S. 211, 216. *Alice State Bank* v. *Houston Pasture Co.*, 247 U. S. 240, 242. The first calls for decision upon a single point. It specifically assumes the absence of intervening rights and that the application was appropriately made. There is no question as to the validity of either the original or reissue patents.

Warth filed his first application January 7, 1927 and his second November 7, 1930.[1] From these came the original patent, January 6, 1931. It was to correct an error in the specification that the reissue patent was granted. Before issue of the original patent Johnson, November 26, 1929, filed application on which a patent issued April 5, 1932. April 4, 1933, two years and four months after the original patent was granted Warth, he carved from his second application a divisional one in which he copied the claims of the Johnson patent. In the interference declared upon the conflict, the patent office held Warth's divisional application entitled to the filing date of his first one, and awarded the claims of the Johnson patent to him as prior inventor. These are the claims held too late by the circuit court of appeals.

The claims of the reissue patent involved are shown in the margin.[2] The important feature is simultaneous application of pressure and heat to the center spot to make it stick to the cork cushion in the cap. Neither these nor any other claims of the patent specify

[1] The first application extended to materials to be used in making center spots as well as to methods for applying them. The second application, because of a requirement of the patent office, omitted disclosures as to materials but included those as to methods that the first contained.

[2] Claim 1. "The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden."

Claim 3 repeats the words of claim 1 and adds these words, "while subjecting the assembled unit to pressure."

means to be employed to furnish the heat. The claims in suit of the divisional patent[3] cover means to supply heat to be applied to the center spots when subjected to pressure. The important feature is "heating the pads [cork cushions] in the caps" before placing the spots upon them.

The first application, January 7, 1927, stated: "It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating as soon as the metal foil spot is deposited." That application contained claims, construed by the circuit court of appeals to be broad enough to cover that disclosure. The patent office called for drawings to illustrate means for carrying out the method claimed. Accordingly, Warth showed, by way of illustration, that heat might be furnished by the punch used to cut the spots from the adhesive material and place them upon the cork in the cap, where by the same stroke of the plunger, they might be subjected to pressure. When he filed the drawings, December 3, 1930, he canceled from the first application the statement just quoted and canceled the claims originally filed. The second application had already been filed. Both contained another statement: "In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive. . . . " So far as concerns the question under consideration,

[3] These claims are fully indicated immediately below. The insertions in brackets give equivalent terms used in the claims of the Reissue patent.

Claim 1. "The method of assembling linings [center spots] for sealing pads [cushion material] in ~~respectable~~ receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads."

Claim 2 repeats the words of claim 1 and adds these words, "and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads."

Claim 3 repeats the words of claim 1 and the addition of claim 2 and adds these words, "and then placing the linings assembled in the caps under pressure during the cooling thereof."

it is broad enough to include means for supplying heat by the punch as shown by the drawings, and the preheating method claimed in the divisional application.

The district court found no adverse use of the preheating method prior to the filing date of the application for the reissue patent. The circuit court of appeals did not disturb that finding. It found that Warth's disclosure of the preheating method was continuously before the patent office from the date of his first application, but that there was no claim for the preheating method on file from December 3, 1930, until April 4, 1933, when he filed application for the divisional patent. It held, citing *Webster Co.* v. *Splitdorf Co., supra,* that *prima facie* the two year limit applies to divisional applications, and that an applicant who waits longer before claiming an invention disclosed in his patent must justify his delay by proof of some excuse. It said (86 F. (2d) 702), "No such excuse appears here. Had Warth chosen to retain in his parent application broad generic claims which might cover the preheating method, then indeed the Splitdorf rule might not be applicable . . . But . . . for a period of more than two years Warth apparently did not wish to claim the preheating method, having deliberately canceled the preheating specification from his original application and shaped his claims so as to exclude it and his patent having been granted January 6, 1931. He made no claim for preheating until more than two years thereafter, namely, April 4, 1933. In the meantime a patent containing claims for the preheating method had been granted to Johnson on April 5, 1932, and it was Warth's discovery of this fact which stirred him to action. As in the *Splitdorf* case, had it not been for this competitor, Warth might never have considered the subject worth claiming as an invention." The court meant that Warth had really abandoned his invention. See *Western Electric Co.* v. *General Talking Pictures Co.,* 91 F. (2d) 922, 927.

But, as abandonment was not pleaded as a defense, R. S. § 4920, and as Warth's disclosure was continuously before the patent office, clearly without any significance adverse to the petitioner is the fact that Warth formally canceled one disclosure from his first application and with it claims thought by the circuit court of appeals broad enough to cover the disclosure. The continuity so maintained shows that Warth intended to retain, not to abandon, the disclosed inven-

tion. See *Godfrey* v. *Eames*, 1 Wall. 317, 325-326. *Clark Blade & Razor Co.* v. *Gillette Safety Razor Co.*, 194 Fed. 421, 422.

This case is not like *Webster Co.* v. *Splitdorf Co., supra.* In that case, there came here the question of the validity of claims of a patent issued to Kane in 1918. In 1910 Kane had filed his first application, on which patent issued in 1916. In 1913 a patent covering the same subject-matter issued to the Podlesaks, to whom a reissue patent was granted in 1915. Later in 1915, Kane filed a divisional application which copied the claims of the Podlesak patent. They were decided in favor of the Podlesaks. Thereafter, June 17, 1918, Kane amended his divisional application by adding claims which were allowed, and September 24, 1918, patent issued to Webster Electric Company, Kane's assignee. In 1915, it had brought the suit against the Splitdorf Company. October 25, 1918, it filed a supplemental bill bringing in claims of the patent issued September 24, 1918.

This Court pointed out (p. 465) that the claims in question "were for the first time presented to the Patent Office, by an amendment to a divisional application eight years and four months after the filing of the original application, five years after the date of the original Podlesak patent, disclosing the subject matter, and three years after the commencement of the present suit." We suggested that it was doubtful whether the claims were not so enlarged as to preclude allowance under the original application; we found that Kane, deeming their subject-matter not invention, did not intend to assert them, and, prior to 1918, did not entertain an intention to have them covered by patent. During all of this time their subject matter was disclosed and in general use; Kane and his assignee simply stood by and awaited developments. It was upon the reasons so stated that this Court declared (p. 466) "We have no hesitation in saying that the delay was unreasonable, and, under the circumstances shown by the record, constitutes laches, by which the petitioner lost whatever rights it might otherwise have been entitled to."

Upon a review of earlier cases we condemned the lower court's statement (283 Fed. 83, 93) that *Chapman* v. *Wintroath*, 252 U. S. 126, fixed the time within which application for a divisional patent might be made at two years from date of the issue of the parent patent. We showed that the *Chapman* case held that an inventor,

whose application disclosed but did not claim an invention later patented to another, was not required within one year after issue of the other patent, to file divisional application claiming the invention and so to raise issue of interference, but that, by analogy, the two-year period under R. S. § 4886[4] applied rather than the one-year period of R. S. §4894,[5] and that the opinion did not fix a hard and fast rule to be applied in every case of a divisional application. Then we said (p. 471): "Our conclusion, therefore, is that, in cases involving laches, equitable estoppel, or intervening private or public rights, the two-year time limit *prima facie* applies to divisional applications, and can only be avoided by proof of special circumstances justifying a longer delay. In other words, we follow in that respect the analogy furnished by the patent reissue cases." That statement is not directly applicable to the precise question of laches upon which the case turned, but was made in reference to the question arising upon the lower court's erroneous interpretation of *Chapman* v. *Wintroath*. See *Wagenhorst* v. *Hydraulic Steel Co.*, 27 F. (2d) 27, 29-30. *Wirebound Patents Co. et al.* v. *Saranac*, 37 F. (2d) 830, 840-841. *Utah Radio Products Co.* v. *Boudette*, 78 F. (2d) 793, 799. It is clear that, in the absence of intervening adverse rights, the decision in *Webster Co.* v. *Splitdorf Co.* does not mean that an excuse must be

[4] R. S. § 4886, as amended March 3, 1897 (29 Stat. 692): "Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor." [The statute has since been amended, but not to change the two-year period. See 35 U. S. C. § 31.]

Cf. R. S. § 4887 (35 U. S. C. § 32), relating to inventions patented abroad; R. S. § 4897 (35 U. S. C. § 38), relating to renewal application after failure to comply with requirement as to payment of final fee; R. S. § 4920 (35 U. S. C. § 69), relating to defense of prior invention.

[5] R. S. § 4894, as amended March 3, 1897 (29 Stat. 693). "All applications for patents shall be completed and prepared for examination within one year after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within one year after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable." [The statute has since been amended to reduce the period to six months. See 35 U. S. C. § 37.]

shown for a lapse of more than two years in presenting the divisional application. Where there is no abandonment, mere delay in filing a divisional application for not more than two years after an intervening patent or publication, does not operate to enlarge the patent monopoly beyond that contemplated by the statute. By R. S. § 4886, delay in filing an application for not more than two years after an intervening patent or publication does not bar a patent unless the invention "is proved to have been abandoned." See *Wirebound Patents Co., et al.* v. *Saranac*, 37 F. (2d) 830, 840, 841; 65 F. (2d) 904, 905, 906. And, as none need be shown, there is no occasion to decide whether the facts stated in the second question are sufficient to constitute an excuse for the delay referred to.

As our decision is limited to the first question presented, the judgment of the circuit court of appeals will be reversed and the case will be remanded to that court for decision of the other issues in the case in accordance with this opinion.

It is so ordered.

Mr. Justice CARDOZO and Mr. Justice REED took no part in the consideration or decision of this case.

A true copy.

Test:

Clerk, Supreme Court, U. S.

BLANK

PAGE

SUPREME COURT OF THE UNITED STATES.

No. 72.—October Term, 1937.

Crown Cork & Seal Company, Inc., Petitioner, *vs.* Ferdinand Gutmann Co., Inc., Respondent. | On Writ of Certiorari to the United States Circuit Court of Appeals for the Second Circuit.

[May 2, 1938.]

Mr. Justice Black, dissenting.

This Court declared in *Webster Co.* v. *Splitdorf Co.*, 264 U. S. 463, 466, 471:

"In suits to enforce reissue patents, the settled rule of this Court is that a delay for two years or more will 'invalidate the reissue *unless the delay is accounted for and excused by special circumstances, which show it to have been not unreasonable.*' . . .

"Our conclusion, therefore, is that in cases involving *laches, equitable estoppel or intervening private or public rights,* the two year limit *prima facie applies to divisional applications* and can only be avoided *by proof of special circumstances justifying a longer delay.* In other words, we follow in that respect the analogy furnished by the patent reissue cases." (Italics supplied.)

The rule announced in the *Splitdorf* case was based upon a long line of decisions of this Court extending from *Miller* v. *Brass Co.*, 104 U. S. 350, decided in 1882.

The majority opinion abandons the principle of the *Splitdorf* case that either laches *or* equitable estoppel *or* intervening private rights *or* intervening public rights—in the absence of *proved special circumstances*—bars a divisional patent after a lapse of an unreasonable length of time—*prima facie* two years. It is now held that neither laches nor equitable estoppel may alone invalidate a patent without proof of "intervening adverse rights." The authorities relied on in the *Splitdorf* case emphasized the right of the public—apart from provable adverse use by individuals—to require an applicant to pursue his right to a patent diligently and

without enlargement of claims *after filing an original application.*[1] "Any practice by the inventor and applicant for a patent through which he deliberately and without excuse postpones beyond the date of the actual invention, the beginning of the term of monopoly, and thus puts off the free public enjoyment of the useful invention, is an evasion of the statute and defeats its benevolent aim."[2]

There is a further departure from the *Splitdorf* case in the holding that two years delay in filing a divisional application after an intervening patent does not—*in the absence of actual abandonment of the invention*—bar the right to a "divisional" patent. Abandonment is but one of many grounds for invalidating a patent. Equitable estoppel, intervening public rights, or unjustified and unexplained laches were considered in the *Splitdorf* case and cases there relied on to be individually sufficient bars, without proof of abandonment. Unjustified delay and abandonment are separate defenses. If proof of abandonment is to be a prerequisite, laches as a separate defense is destroyed, although it has been recognized for more than fifty years. Unreasonable delay which serves to postpone the beginning of the seventeen year monopoly limitation, not only is possible without abandonment of the invention, but is highly probable. With the destruction of the defense of laches the public loses the benefit of the principle that "An inventor *cannot without cause* hold his application pending during a long period of years, leaving the public uncertain, whether he intends ever to prosecute it, and keeping the field of his invention closed against other inventions."[3]

The Court of Appeals following this settled principle—now abandoned—said:[4] "We think they [claims in the patent] are invalid for *laches in filing the application for them.* (Citing *Webster Co.* v. *Splitdorf Co.*). . . . These circumstances [facts of this case] invite operation of the two year limitation designed to protect the public against obtaining in effect an extension of a patentee's monopoly *by apathy and unexcused delay* in bringing

[1] See, Miller *v.* Brass Co., 104 U. S. 350, 355; James *v.* Campbell, 104 U. S. 356, 371; Mahn *v.* Harwood, 112 U. S. 354, 360; Ives *v.* Sargent, 119 U. S. 652, 662; Topliff *v.* Topliff, 145 U. S. 156, 170, 171; Wollensak *v.* Sargent, 151 U. S. 221, 228.

[2] Woodbridge *v.* United States, 263 U. S. 50, 56.

[3] Planing Machine Co. *v.* Keith, 101 U. S. 479, 485.

[4] 86 F. (2d) 698, 702.

forward by divisional or reissue applications claims broader than those originally sought." (Italics supplied.)

While "divisional" applications have never been expressly authorized by statute the courts have long recognized their use as a part of Patent Office procedure. Petitioner's patent which the Court of Appeals found barred by laches was granted on a "divisional" application. Patent Office regulations which have limited each application for a patent to a single invention and have required a "division" of an application containing claims for two separate and distinct inventions, apparently gave rise to the procedural device of "divisional applications." The Court of Appeals of the District of Columbia acting in a special appellate capacity[5] and the Patent Office, have treated a "divisional," properly used, in some respects, as a substitute for an amendment. In accordance with this conception "divisionals" have been for certain purposes, treated as "continuations" of original applications and given the priority of original applications. The logical conclusion was reached that after an original application merged in a patent, a "divisional" application could not be attached to, or considered as a "continuation" of it, because "there was nothing to be continued."[6] After a patent is granted it passes "beyond the control and jurisdiction" of the Patent Office; the proceedings are closed and the application can neither be amended nor serve as the basis for a new "divisional" or "continuing" application.[7]

Here an application for a process patent was filed in 1927. November, 1930, in response to Patent Office requirement, a "divisional" application was filed for a *product* patent. January, 1931, a process patent was granted on the original application. More than two years after the original application had merged into a process patent another application designated as a "divisional" was

[5] Frasch *v.* Moore, 211 U. S. 1, 9, 10; Butterworth *v.* Hoe, 112 U. S. 50, 60.

[6] In re Spitteler, 31 App. D. C. 271, 274, 275. " . . . 'it is well established that for one application to be a division, within the meaning of the law, of another, the two must at some time be co-pending.' . . . Sarfert *v.* Meyer, 1902 C. D. 30; In re Spitteler, 31 App. D. C. 271, 1908 C. D. 374; . . . Wainwright *v.* Parker, 32 App. D. C 431, 1909 C. D. 379. . . .

" . . . An application cannot be considered as a continuance of a patent granted prior to the filing thereof, since after the application has eventuated into a patent there is nothing left pending before the Patent Office upon which it could act or to which the later application could attach. In re Spitteler, 31 App. D. C. 271, 134 O. G. 1301; Wainwright *v.* Parker, 32 App. D. C. 431, 142 O. G. 1115, 1909 C. D. 379."

Fessenden *v.* Wilson, 48 F. (2d) 422, 424.

[7] See, McCormick Machine Co. *v.* Aultman, 169 U. S. 606, 608, 609.

filed (April 4, 1933), for a second process patent—here involved. The Court of Appeals found this delay of six years to be without justification or excuse. Disregarding the previously recognized requirement that justification and excuse must be proven for such delay, the majority now hold that an applicant can, for six years, delay his claim for an alleged discovery without excuse, justification, or reason for the delay. This is permitted despite the fact that unclaimed disclosure of the alleged invention had been made in the 1927 process application and in the 1930 product application.

Congress—given the power by the Constitution—has fixed the statutory limit of a patent monopoly at seventeen years.[8] By the procedural device of a "divisional" application, designed to protect rights granted an inventor by statute, petitioner has carved for itself priority monopoly rights, beginning in 1927 and lasting until 1951—twenty-four years, or seven years more than Congress has authorized.

In the remedy of reissue provided by statute for applicants whose claims fail to protect their entire discoveries,[9] Congress has been alert to protect the public from such an extension of monopoly. A reissue patent must be based on oath that an applicant's original patent failed to cover its actual invention as a result of accident, inadvertence or mistake, and runs only *for the unexpired portion of a seventeen year patent grant.* The use of "divisionals" or "continuations," no longer subject to the defense of laches or unreasonable delay, will permit an applicant to obtain, by a non-statutory procedural device, monopoly privileges denied by the reissue statute.

The essential additional claim in petitioner's 1934 "divisional" patent was only mentioned in the 1927 original application and the 1930 "divisional" application by way of casual suggestion and incidental illustration.[10] Even this casual suggestion was stricken from the 1927 application in December, 1930. These suggestive

---

[8] 35 U. S. C., Chapter 2, Sec. 40.

[9] 35 U. S. C., Chapter 2, Sec. 64.

[10] The essential additional claim of the 1934 divisional process patent was for "preheating" cork used in making bottle caps. The incidental reference to preheating in the 1927 application was as follows:

"It *may* be *desirable* to secure the metal foil in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during any interval between assembling and final sticking. This *may be accomplished, for example,* by preheating the assembled crown, to soften the coating as soon as the metal foil spot is deposited. Or the coating *may be, softened* by moistening slightly with a solvent, such as benzol. In either case the coating

illustrations did not constitute parts of the inventions which the 1927 and 1930 applications sought to cover or secure.[11] The speculative suggestions—from separate applications for different inventions—are pieced together and held sufficient to "continue" the 1927 application (after its merger in a patent) and the 1930 application, as support for the retroactive operation of a claim made for the first time in 1933. As a result of the destruction of the defense of laches in applying for "divisional" applications, those familiar with a given field of industry may now insert speculative conjectures as disclosures in various applications and permit them to lie dormant until a competitor reduces speculation to practicality. Then, by the device of a "divisional," or if need be, as here, by "divisional" on "divisional," such a competitor can be pursued with infringement suits and harassed into surrendering his business to an ingeniously dilatory applicant.[12] Thus, sweeping, indefinite and unclaimed disclosures, and adroit use of "divisionals" —which laches and unreasonable delay are no longer sufficient to bar—are permitted to extend a patent's statutory life and to increase a patentee's reward beyond that granted by Congress.

" 'The patent laws are founded in a large public policy to promote the progress of science and the useful arts. The public, therefore, is a most material party to, and should be duly considered in, every application for a patent. . . . But the arts and sciences will certainly not be promoted by giving encouragement to inventors to withhold and conceal their inventions for an indefinite time, or to a time when they may use and apply their inventions to their own exclusive advantage, irrespective of the public benefit, and certainly not if the inventor is allowed to conceal his invention to be brought forward in some after time to thwart and defeat a more diligent and active inventor, who has placed the benefit of his invention within the reach and knowledge of the public.' "[13]

---

becomes tacky enough to hold the metal foil from getting out of position during ordinary passage through assembling apparatus."

The 1930 divisional application for a product patent merely suggested that "*It may be desirable* to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. *This may be accomplished*, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil is deposited." (Italics supplied.)

11 Cf., Corbin Cabinet Lock Co. *v.* Eagle Lock Co., 150 U. S. 38, 42, 43.

12 Cf., Atlantic Works *v.* Brady, 107 U. S. 192, 200.

13 Woodbridge *v.* United States, *supra*, 61.